AN EXPLORATORY STUDY OF PHYSICAL RESTRAINT USE FOR THAI HOSPITALIZED ELDERLY PATIENTS

BUSARA OEARSAKUL

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Busara Oearsakul
.....
Miss. Busara Oearsakul
Candidate

Yupapin Sirapo-ngam
.....
Assoc. Prof. Yupapin Sirapo-ngam, D.S.N.
Major-advisor

Porntip Malathum
.....
Asst. Prof. Porntip Malathum, Ph.D.
Co-advisor

Neville E. Strumpf
.....
Prof. Neville E. Strumpf, Ph.D.
Co-advisor

B. Mahaisavariya
.....
Prof. Banchong Mahaisavariya, M.D.
Dean
Faculty of Graduate Studies
Mahidol University

.....
Prof. Rutja Phuphaibul, D.N.S.
Program Director
Doctor of Philosophy Program in Nursing
Faculty of Medicine, Ramathibodi Hospital
Mahidol University

Thesis
entitled

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on
September 23, 2009

Busara Oearsakul
.....
Miss. Busara Oearsakul
Candidate

Somchit Hanucharurnkul
.....
Prof. Emeritus Somchit Hanucharurnkul,
Ph.D.
Chair

Yupapin Sirapo-ngam
.....
Assoc. Prof. Yupapin Sirapo-ngam,
D.S.N.
Member

Neville E. Strumpf
.....
Prof. Neville E. Strumpf,
Ph.D.
Member

Porntip Malathum
.....
Asst. Prof. Porntip Malathum,
Ph.D.
Member

Jiraporn K. Watthana
.....
Assoc.Prof.Jiraporn Kespichayawathana,
Ph.D.
Member

Rajata Rajatanavin
.....
Prof. Rajata Rajatanavin,
M.D., F.A.C.E.
Dean
Faculty of Medicine, Ramathibodi Hospital
Mahidol University

B. Mahaisavariya
.....
Prof. Banchong Mahaisavariya,
M.D.
Dean
Faculty of Graduate Studies
Mahidol University

Fongcum Tilokskulchai
.....
Assoc. Prof. Fongcum Tilokskulchai,
Ph.D.
Dean
Faculty of Nursing
Mahidol University

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Busara Oearsakul

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BUSARA OEARSAKUL 4637614 NRNS/D

Ph.D. (NURSING)

THESIS ADVISORY COMMITTEE : YUPAPIN SIRAPO-NGAM, D.S.N., PORNTIP MALATHUM, Ph.D. NEVILLE E. STRUMPF, Ph.D.

ABSTRACT

The purpose of this study was to explore physical restraint and its contributory factors for Thai hospitalized elderly patients. The Theory of Reasoned Action of Ajzen and Fishbein and the Conceptual Model for the Use of Restraints proposed by Kayser-Jones were synthesized as a Conceptual Framework for Physical Restraint Use for this study. A descriptive study was utilized with structured questionnaires and direct observation. The purposive sample consisted of six groups from nine wards of a teaching hospital in Songkhla: 1) 13 nursing administrators; 2) 310 healthcare staff; 3) 27 healthcare staff who restrained elderly patients; 4) 429 elderly patients aged 60 and older; 5) 27 restrained elderly patients; and 6) 27 family members of restrained elderly patients.

The nursing administrators were asked to answer the Administrative Questionnaire. A large sample (429) of elderly patients was observed using a Physical Restraint Use Observation Tool twice a day until discharge. Cognitive status was assessed using the Chula Mental Test. For restrained patient, the primary nurse was asked to give the rationale and to answer the physical restraint use questionnaire (PRUQ). Family members were also asked to complete the PRUQ. Descriptive, independent t-test, chi-square, Pearson's correlation, and ANOVA were used to identify physical restraint use (PRU) and its contributory factors.

The prevalence of PRU, including side rails was 65.7%. The use of side rails only was 59.4%, whereas both the use of side rails and additional physical restraint devices were 6.3%. The most frequently types of PRU were bilateral wrist restraint. The rationale was protecting medical devices and preventing falls. Statistically significant differences in restrained and unrestrained elderly patients ($t = 3.615$, $p < .001$, $\chi^2 = 166.815$, $p < .001$, respectively) were found based on age and cognitive status. A statistically significant relationship existed among age and years of clinical experience, and attitudes toward PRU ($r = -.253$, $p < .01$, $r = -.248$, $p < .01$, respectively). Healthcare staff attitudes toward PRU also showed statistically significant differences among position and practice setting ($F = 11.063$, $p < .001$, $F = 4.7$, $p < .001$, respectively). Statistically significant differences also occurred in attitudes toward PRU between family members of restrained elderly patients and healthcare staff who restrained elderly patients ($t = -2.27$, $p < .05$).

Findings from this study provide a theoretical explanation for the extent and use of physical restraints in Thailand. It is thus a first step toward gathering evidence-based data related to an unresolved and unquestioned practice in Thailand. This study also provides new knowledge about clinical situations where restraints are common, and eventually it will lead to the development of an appropriate educational intervention and guideline suitable for practice in Thailand.

KEY WORDS : PHYSICAL RESTRAINT USE / HOSPITALIZED ELDERLY PATIENTS

108 pages

การศึกษาการใช้การผูกยึดในผู้ป่วยสูงอายุที่เข้ารับการรักษาในโรงพยาบาล

AN EXPLORATORY STUDY OF PHYSICAL RESTRAINT USE FOR THAI HOSPITALIZED ELDERLY PATIENTS

บุศรา เอี้ยวสกุล 4637614 NRNS/D

ปร.ด. (การพยาบาล)

คณะกรรมการที่ปรึกษาวิทยานิพนธ์ : ยุพาพิน ศิรโพธิ์งาม, D.N.S., พรทิพย์ มาลาธรรม, Ph.D., NEVILLE E. STRUMPF, Ph.D.

บทคัดย่อ

การศึกษาครั้งนี้มีวัตถุประสงค์เพื่อศึกษาการใช้การผูกยึดและปัจจัยที่เกี่ยวข้องในผู้ป่วยสูงอายุที่เข้ารับการรักษาในโรงพยาบาล กรอบแนวคิดของการศึกษานี้สังเคราะห์มาจาก The theory of reasoned action of Ajzen and Fishbein และกรอบแนวคิดการใช้การผูกยึดของ Kayser-Jones กลุ่มตัวอย่างจำนวน 6 กลุ่มจาก 9 หอผู้ป่วย โรงพยาบาลมหาวิทยาลัยในจังหวัดสงขลา ประกอบด้วย 1) ผู้บริหารทางการพยาบาล 13 คน 2) บุคลากรทางการพยาบาล 310 คน 3) บุคลากรทางการพยาบาลที่ผูกยึดผู้ป่วยสูงอายุ 27 คน 4) ผู้ป่วยสูงอายุ 429 คน 5) ผู้ป่วยสูงอายุที่ถูกผูกยึด 27 คน และ 6) ญาติของผู้ป่วยสูงอายุที่ถูกผูกยึด 27 คน กลุ่มตัวอย่างตอบแบบสอบถาม ในขณะที่ผู้ป่วยสูงอายุถูกสังเกตการใช้การผูกยึดวันละ 2 ครั้ง ทุกวันจนกระทั่งจำหน่ายออกจากโรงพยาบาล วิเคราะห์ข้อมูลโดยใช้สถิติบรรยาย t-test ไคสแควร์ สัมประสิทธิ์สหสัมพันธ์ของเพียร์สัน และการวิเคราะห์ความแปรปรวน

ผลการศึกษาพบว่า อุบัติการณ์การใช้การผูกยึดคิดเป็น 65.7% แบ่งเป็น การใช้ไม้กั้นเตียงอย่างเดียว 59.4% และการใช้ไม้กั้นเตียงร่วมกับการใช้การผูกยึดวิธีอื่น 6.3% ประเภทของการผูกยึดที่ใช้บ่อยที่สุดคือ การผูกข้อมือทั้งสองข้าง เหตุผลที่ใช้ในการผูกยึดคือ ป้องกันการดึงอุปกรณ์ทางการแพทย์และป้องกันการหกล้ม อายุและภาวะการรู้คิดระหว่างผู้ป่วยสูงอายุที่ถูกผูกยึดและไม่ถูกผูกยึดมีความแตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ .001 อายุและประสบการณ์การทำงานของบุคลากรทางการพยาบาลมีความสัมพันธ์กับทัศนคติต่อการผูกยึดอย่างมีนัยสำคัญทางสถิติที่ระดับ .01 นอกจากนั้น ตำแหน่งของการปฏิบัติงานและหอผู้ป่วยที่ปฏิบัติงานมีผลต่อทัศนคติต่อการผูกยึด ญาติของผู้ป่วยที่ถูกผูกยึดและบุคลากรทางการพยาบาลที่ผูกยึดผู้ป่วยเหล่านั้นมีทัศนคติต่อการผูกยึดแตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ .05

ข้อค้นพบจากการศึกษาครั้งนี้ ให้ข้อมูลพื้นฐานของการใช้การผูกยึดในผู้ป่วยสูงอายุ อันจะนำไปสู่การพัฒนาโปรแกรมการศึกษา วิธีการและแนวทางปฏิบัติที่เหมาะสมเพื่อลดการใช้การผูกยึดในอนาคตต่อไป

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CHAPTER I
INTRODUCTION

Background and Significance

The aging population in Thailand is currently experiencing one of the most rapid increases in the developing world. In 1990, the elderly share of the population aged 60 years and over in Thailand was 7%; by 2000, it had reached 9%. By 2020, the proportion of the elderly population is predicted to rise to 15%, or one in every 7 people. The life expectancy of Thai people is also increasing, leading to profound demographic changes in the population. It is anticipated that by the year 2030, the aging dependency ratio will be higher than the dependency ratio for children, reflecting the escalating burden of elder care on family, society and national development (Poolpolamnuay & Isarabhakdi, 2002).

As life expectancy increases, problems with the aging population, chronic illness, and disability will become more significant. Common health problems for older Thais are hypertension, along with musculoskeletal, respiratory, and gastrointestinal diseases (Nonthachai, 1992; Siriboon, 1996). Interestingly, elderly Thai women appear to have a higher incidence of chronic illness than elderly men. With regard to health management, 55% of elders use public hospitals, 32% use community health centers, and 13% use clinics or private hospitals.

Elderly Thais with health problems are often admitted to hospitals, rather than cared for at home, because there are few nursing homes or formal home health care services. The prevalence of hospitalization among Thai elderly is 28.1% (Assantachai & Maranetra, 2005). The factors determining hospital admissions are lung disease, history of falls, poor global self-rated health, hypertension, and poor mobility. In fact, Jitapunkul and collegues (1998) reported that 18.7% of Thai elderly experienced one or more falls, often inducing injury. In addition, acute confusional states are a common problem, with a higher incidence among hospitalized elderly patients, and usually occurring (15-80%) prior to the presentation of certain physical illnesses (infection,

heart failure, etc.), or as a result of complications occurring during hospitalization (Eden & Foreman, 1996; Francis, Martin, & Kapoor, 1990; Inaba-Roland & Maricle, 1992; Kelley, 1996; Lusis, Hydo, & Clark, 1993; Pierre, 1996). In Thailand, as well as other parts of the world, including the United States, hospitalized older adults are at risk for use of physical restraints, especially when presenting with altered mental status, fall risk, poor mobility, and complications of chronic illnesses, as healthcare staff often see no other alternatives for responding to these situations or behaviors.

From 1997 to the present, only two descriptive studies (Phakaporanrut, 2002; Phangsawat, Sasitornwashakul, Phuwarawutiphanich, & Tanomkhang, 1997) examined physical restraint use (PRU) in hospitalized patients in Thailand. These studies focused on knowledge, attitudes and practice behavior of Thai nurses. Most nurses had positive attitudes toward the use of restraints, with incomplete knowledge about risk for poor outcomes or alternatives to restraint use in hospitalized elderly patients. Factors shown to influence PRU in Thailand included patient characteristics, the view that physical restraints are a positive intervention, work experience, organizational factors, and the physical characteristics of the hospital wards.

Currently, much of the impetus for restraint use in Thailand arises from pressure from hospital administration about risk management; for example, there is worry about litigation if a patient falls or sustains a serious injury. Although the Hospital Accreditation (HA) standard in Thailand states that patients' rights for privacy, human dignity, personal values and beliefs are respect; healthcare staff believe that physical restraints are needed and view them as an appropriate intervention, despite the lack of empirical evidence for the effectiveness of restraints in safeguarding patients from injury.

By the late 1980s in the United States, it was estimated that more than 500,000 older persons in hospitals and nursing homes spent part of each day in physical restraints (Evans & Strumpf, 1989). The incidence and prevalence of PRU in the elder varies by setting (Evans & Strumpf, 1989; Karlsson, Bucht, Eriksson, & Sandman, 2001). Nevertheless, between 18 and 41.5% of acute care patients have been reported restrained at some point during their hospitalization (Frengley, 1996; Minnick, Mion, Leipzig, Lamb, & Palmer, 1998; Whitman, Davidson, Sereika, & Ruby, 2001) and 15-85% of residents were restrained in nursing home settings (Capezuti, Evans, Strumpf,

& Maislin, 1996; Hamers, Gulpers, & Strik, 2004; Karlsson, Bucht, Eriksson, & Sandman, 2001). Currently, in the U.S., these percentages are much lower, especially in nursing homes, due to legislative mandates and other regulatory standards.

The 1986 Institute of Medicine Report on Nursing Homes, the Omnibus Budget Reconciliation Act (OBRA) of 1987, also known as the Nursing Home Reform Act, warnings from the Food and Drug Administration, and changes in guidelines from the Joint Commission on Accreditation of Healthcare Organizations in 1991 had a significant impact on restraint reduction in the U.S. During the past decade, interventions targeting staff and health systems reduced PRU and further advanced restraint free care as a gold standard for practice. New knowledge, changed attitudes, and motivation of nursing staff to modify practices related to use of restraints have markedly shifted philosophy regarding restraint use in hospitals and nursing homes.

The literature, mostly from the U.S., suggests that education and patient-focused consultation are essential elements in changing beliefs regarding restraint efficacy, reducing restraint use, and empowering hospital and nursing home staff to make the transition to restraint-free care. Most studies employing educational interventions for nursing staff argue for the necessity of education, not only to change attitudes about use of restraints, but also to provide new information and encourage modification of practice toward current standards of care. In order to develop an educational intervention suitable for practice in Thailand, however, more information is needed about PRU for Thai hospitalized elderly patients. This includes knowledge about the organizational environment (policies/ standards of practice); healthcare staff characteristics (age, gender, education, work experience, specialized education in geriatrics, and training about physical restraint); healthcare staff and family member attitudes toward PRU; patient characteristics (age, gender, and cognitive status); and PRU of healthcare staff (prevalence, frequency, type, and rationale for usage).

Physical restraints have been used to maintain patient and others' safety, to prevent falls (Hamers, Gulpers, & Strik, 2004; Strumpf & Evans, 1987, 1988), to prevent removal of tubes and other invasive treatment or monitoring devices (Lee, Chan, Tam, & Yeung, 1999; Quinn, 1993; Thomas, Redfern, & John, 1995; Werner, 2002), to manage agitation and aggression (Hantikainen, 1998), to exercise behavioral control, to prevent patients from wandering (O'Keeffe, Jack, & Lye., 1996), and to

provide physical support (Cohen, Neufeld, Dunbar, Pflug, & Brever, 1996; Liukkonen & Laitinen, 1994; Minnick et al., 1998; Molassiotis & Newell, 1996). Although physical restraints might reduce some hazards, growing evidence indicates the negative consequences of physical restraints. These consequences include both physical and psychological affects on patients, families, and hospital staff (Evans, Wood, Lambert, & FitzGerald, 2002). The direct impact of the restraint device on the patient includes lacerations, bruises, nerve damage, ischemic injury, asphyxiation and sudden death from strangulation, along with the indirect consequences of immobilization, including reduced functional ability, loss of muscle tone and contractures, extended periods of hospitalization, development of pressure ulcers, falls, incontinence and failure to be discharged home (Evans, Wood, Lambert, & FitzGerald, 2002). Morbidity and mortality rates are eight times greater among restrained patients than those who are unrestrained (Robbins, Boyko, Lane, Cooper, & Jahnigen, 1987).

Reactions like anger, fear, denial, demoralization, humiliation, depression, agitation, and regressive behavior are often expressed by patients who have been restrained (Gorski, 1995; Strumpf & Evans, 1988). Furthermore, family members also report negative experiences with physical restraint. These experiences include anger and discomfort (Evans, Wood, Lambert, & FitzGerald, 2002). Most nurses also feel frustrated, guilty, morally distressed, and ethically conflicted about the duty to respect patients' rights of self-determination versus protection of those in their care (Helmuth, 1995; Liukkonen & Laitinen, 1994; Mattiasson & Andersson, 1995; Strumpf & Evans, 1988). Physical restraints appear to have little actual benefit to patients. Furthermore, there is no clear evidence to support the use of physical restraints to prevent injury in clinical settings (Cheung & Yam, 2005).

Most studies about PRU in Western countries demonstrate many negative consequences from physical restraint. However, in Thailand, the practice of PRU remains widespread and appears to be accepted as inevitable and perhaps unquestioned because of concerns about patient safety.

Significance of the Study

Although most of the restraint research has been done in the U.S., implications in Thailand are limited because of marked differences in cultures, values, beliefs,

legal/regulations, and advanced technology. In addition, the nature of PRU in Thailand remains unclear and the solutions to address the problem remains unresolved. Furthermore, only two studies have been done in Thailand. Therefore, a full description of the nature of PRU in Thailand is needed if solutions to address PRU are to be implemented. Thus, an exploratory study of PRU for Thai hospitalized elderly patients is an important first step toward gathering evidence-based data upon which to develop interventions aimed at reducing PRU in Thailand.

Research Questions

The research questions of this study are as follows:

1. What are the prevalence, frequency, type, and rationale of PRU for Thai hospitalized elderly patients?
2. Is there a difference between patient characteristics and PRU by healthcare staff for Thai hospitalized elderly patients?
3. Is there a relationship among organizational environmental factors and healthcare staff characteristics and attitudes toward PRU for Thai hospitalized elderly patients?
4. Do healthcare staff and family members have similar/different attitudes toward PRU for Thai hospitalized elderly patients?

Purpose of this Study

The purpose of this study was to explore physical restraint and its contributory factors for Thai hospitalized elderly patients.

Conceptual Framework

A proposed Conceptual Framework for PRU by Healthcare Staff for this study is synthesized from the Theory of Reasoned Action (TRA), later modified as the Theory of Planned Behavior (TPB) proposed by Ajzen and Fishbein (1980), and from a conceptual model for the use of restraints proposed by Kayser-Jones (1992). The synthesized framework for this study is presented in Figure 1.

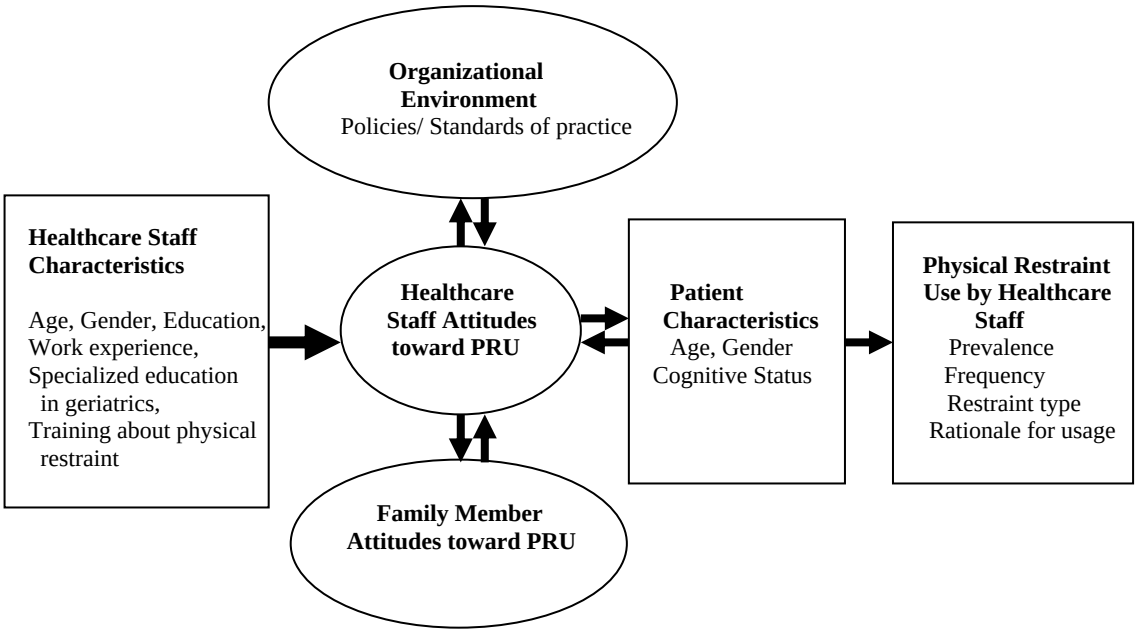

Figure 1 The Conceptual Framework for Physical Restraint Use by Healthcare Staff

Ajzen and Fishbein (1980) consider TRA as a scientific theory based on metatheoretical assumptions. These include epistemology (mainly one truth applying to most individuals), ontology (reactions and behaviors result from situations), and axiology (beliefs and values play a role). The two assumptions of the theory are: 1) human beings are rational and make systematic use of available information; and 2) consideration of the implications of one's actions determines engagement (or not) in certain behaviors. TRA was chosen as a conceptual framework because its assumptions are in line with an exploratory of physical restraint and its contributory factors including patient behavior and staff attitudes. Because healthcare staff are grounded in professional ethics and possess logical thought, they can consider the benefits and consequences of physical restraint.

TRA suggests that behavior is determined by personal intentions to perform a behavior and that this intention is, in turn, a function of attitudes toward the behavior (Ajzen & Fishbein, 1980). Intention (the immediate antecedent of behavior) is the probability, as rated by the subject, that a particular behavior will be performed. However, individuals tend to engage in behaviors when the behaviors are evaluated positively. Attitude is an individual's positive or negative belief about performing a specific behavior. It is made up of personal beliefs accumulated over a lifetime.

Beliefs are formed from direct experiences, outside information, and inference. Only a few beliefs, however, actually influence attitude. Subjective norms are based on the perceptions of specific significant others (spouse, family, close friends, etc.) as to whether or not one should engage in a behavior. Perceived behavioral control is a third antecedent of intention in TRA. It is an individual's perception of the correctness or incorrectness of performing a behavior. In TRA, external factors, such as staff characteristics, have no direct effect on intention, but may be related if they influence the direct antecedents of intention.

The aim of TRA is to explain how individuals decide to perform certain behaviors. In most studies using TRA, the focused in on individual rather than collective behavior. However, this study is similar to that of Werner and Mendelsson (2001) who examined nursing staff members' attitudes, subjective norms, moral obligations, and intentions to use physical restraints with older people.

TRA does not cover all elements relevant to the study, although it provides a framework for healthcare staff characteristics, healthcare staff and family member attitudes toward PRU, and PRU of healthcare staff. Therefore, the Kayser-Jones Conceptualization for the Use of Restraints (Kayser-Jones, 1992) is added because it illustrates how environmental factors may contribute to the use of restraints. Its four major features include physical, organizational, personal and supra-personal, and cultural-psychological-social factors. This allows for an examination in this study of organizational environment, healthcare staff and family member attitudes toward PRU, and healthcare staff and patient characteristics for the Conceptual Framework for PRU of Healthcare Staff for this study.

The TRA and Kayser-Jones frameworks and the literature to date suggest that, at least in the U.S., organizational environment, healthcare staff and family member attitudes toward PRU, and healthcare staff and patient characteristics all influence the use of physical restraint in some way. It was the purpose of this study to explore these possible factors in physical restraint use among Thai hospitalized elderly patients.

Assumption

Physical restraint use represents a confluence of factors, unique to one's culture, including patient and healthcare staff characteristics, organizational milieu, and attitudes of healthcare staff and family members.

Definitions of Terms

1. Organizational/Environmental Variables

1.1 Policies/standards of practice on physical restraint use refer to current hospital policies and administrative manuals, as well as any existing regulatory or certification guidelines, related to use of physical restraints for Thai practice. They were determined through the Administrative Questionnaire of nursing administrators. The Administrative Questionnaire was developed by the researcher for this study.

2. Healthcare Staff Characteristics

2.1 Healthcare staff refer to nursing administrators (Director of Nursing, Nurse Supervisor, and Head Nurse), or healthcare staff (registered nurses, practical nurses, and nurse aids).

2.2 Healthcare staff characteristics refer to age, gender, education, work experience, specialized education in geriatrics, and any educational training about physical restraints (e.g., seminars, conferences, etc.).

3. Healthcare Staff and Family Member Attitudes toward PRU

3.1 Family member refers to a key relative/family member for the hospitalized elderly patient as identified by the patient, family member, or primary nurse.

3.2 Attitudes toward PRU include a set of beliefs and information about PRU by healthcare staff as measured by the Physical Restraint Use Questionnaire (PRUQ) adapted from a Restraint Questionnaire for Staff (RQS) developed by Evans and Strumpf (1990).

4. Patient Characteristics

4.1 Patient is defined as any person aged 60 or above, using the definition of the World Health Organization (National Statistical Office, 1998).

4.2 Patient characteristics refer to age, gender, and cognitive status of elderly patients as obtained from the medical record or census sheet, and recorded on the Physical Restraint Use Observation Tool.

4.3 Cognitive status is characterized by processes of thinking, including, memory and orientation. It was measured by the Chula-Mental-Test.

5. Physical Restraint Use by Healthcare Staff

5.1 Physical restraint is any manual method or physical or mechanical device, material or equipment attached or adjacent to the individual's body that the individual cannot remove easily and which restricts freedom of movement or normal access to one's body (HCFA, 1990).

5.2 Physical restraint use by healthcare staff is defined as the actual use of a physical restraint on a patient during a specified period of observation by the investigator or trained assistants in the day and evening shifts, using the Physical Restraint Use Observation Tool adapted from the Restraint Use Observation Protocol of Evans and colleagues (1997).

5.3 Prevalence of physical restraint use is the percentage of persons restrained in a population at any point of time during the observation of the investigator. A percentage will be calculated using the formula: number restrained/total number patients X 100.

5.4 Frequency of physical restraint use is the number of restraint reported per patient.

5.5 Physical restraint type refers to physical or mechanical devices, including vest/chest restraints, wrist/arm or ankle/leg restraints, hand mitts, or any other devices that cannot be easily removed by the person, with the effect of restricting freedom of movement or normal access to one's body. This definition does not include equipment that limits movement for therapeutic purposes such as traction. Because side rails are frequently used to prevent bed-related falls, they will be considered as restraints if, on a case-by-case basis, they function to prevent a person from

voluntarily transferring in or out of bed and cannot easily be lowered by the person. Restrictive side rails are defined as two raised full-length side rails.

5.6 Rationale for usage refers to a purpose for using a physical restraint. This is determined in two ways: 1) general use for all restrained patients will be identified using the Physical Restraint Use Questionnaire; and 2) specific use for each restrained patient was noted on the Physical Restraint Use Observation Tool.

CHAPTER II
LITERATURE REVIEW

This literature review is organized according to the proposed conceptual framework and examines physical restraint use (PRU) of healthcare staff from several perspectives. PRU by healthcare staff will be described first, followed by patient characteristics, healthcare staff characteristics, healthcare staff and family member attitudes toward PRU, and organizational environmental aspects, respectively.

Physical Restraint Use by Healthcare Staff

The physical restraint use by healthcare staff will be described based on incidence and prevalence of physical restraint use, frequency, type of device, rationale for physical restraint use, alternatives to physical restraint, and negative consequences.

Incidence and Prevalence of Physical Restraint Use

Until 1970, little was known about the prevalence rate of physical restraint use (PRU) in hospitals and nursing homes in the United States. Since 1980, the literature regarding PRU with the elderly has increased markedly (Evans & Strumpf, 1989). The incidence and prevalence of PRU in the elderly varies by setting and age, as well as by types of devices. PRU can also be an artifact of time of day and staffing levels. Methods for data collection have a considerable impact on incidence and prevalence. For example, retrospective chart review is generally not reliable (Bourbonniere, Strumpf, Evans & Maislin, 2003). Thus, exact figures for incidence and prevalence for physical restraint rates with hospitalized elderly patients are difficult to determine. Additionally, the actual rates may be higher than reported in many studies because prevalence does not always include data from periods of lower staffing when the use of restraints may be higher, for instance weekends, late evening, or at night.

The use of physical restraints for hospitalized patients is fairly common. Of adult patients on general hospitals in the USA, 6% to 17% are restrained (Mion,

Minnick, Palmer, Kapp & Lamb, 1996) and 6% to 13% are restrained in medical and surgical wards (Frengley & Mion, 1998). Lever and colleagues (1994), in a cross-sectional survey of restraint use in several institutions, found that an alarming number of people were restrained: 78% of patients in a chronic care hospital, 35% of patients on a psychiatric ward, 21% of patients in an acute care hospital, and 12% of residents in a home for the aged. Kow and Hogan (2000) studied a retrospective chart review of the use of physical restraint in patients on medical teaching units in an acute care hospital. The study showed the incidence of PRU was 7.7%.

With increasing age, the application of physical restraints becomes even more common; prevalence increases to 18% to 22% among those 65 years or older on medical wards (Minnick et al., 1998; Mion et al., 1996). In Israel, a study conducted in a geriatric unit of a general hospital showed that physical restraints were used with 16% of the patients during an 8-month period (Barazovski & Rosin, 1997, as cited in Werner, 2002). In Germany, Bredthauer and colleagues (2005) demonstrated that 30% of elderly patients were physically restrained and the highest incidence (48%) was found in elderly patients with severe cognitive impairments (diagnosis of dementia and/or delirium). These figures contrast with those seen in the UK and much of Europe, where the use of restraints is generally condemned, with rates of use lesser than 10%. In other words, one out of five elderly patients on a general medical or surgical unit is restrained at some point during hospitalization (Mion & Strumpf, 1994).

Several methods have been used alone or in combination for the measurement of PRU: direct observation, survey or interview of nursing staff, and review of medical and nursing records. Direct observation is undoubtedly the most valid and reliable method of measurement, especially since written records or verbal reports may not reflect actual practice. In most studies, restraint use was not directly observed but relied on self-report (Laurin, Voyer, Verreault & Durand, 2004). In Helmuth's study (1995), nurses were asked to recall restraint use over a one week period; they reported that a relatively low percentage (19.2%) of nurses used restraints during this period. Apart from the possibility of recall bias when nurses are asked to remember restraint use, it is also likely that restraint use may be deliberately under-reported due to social desirability.

Laurin and colleagues (2004) determined the sensitivity and specificity of the measurement of PRU reported by the nursing staff in health records among nursing home residents, compared to direct observation. Interviews of two or more nursing staff showed a somewhat stronger relationship with direct observation compared to chart review. Sensitivity and specificity values of the information were highest when information was collected from more than one nurse compared to chart reviews. Reported restraint use according to nursing staff (one nurse or more) gave a sensitivity value of 87.4% and a specificity of 93.7%. When data were reviewed from subjects' medical and nursing notes, sensitivity was reduced to 74.8%, and specificity to 86.3%. Restraint use was underreported in 12.6% of interviews with nursing staff, and in 25.2% of clinical records, whereas it was over reported in 4.4% of interviews and in 19.6% of clinical records. Sensitivity of the measurement was similar when two or more nurses were interviewed compared to one nurse, although a higher value was noticed when two nurses were questioned (94.1% versus 85.1%). This study suggested that interviews of nursing staff are a reliable method of data collection when compared to the health record.

Fogel and Berkman (2005) studied the numbers of days needed to calculate an accurate prevalence rate of physical restraint in an acute inpatient setting, and noted variations based on the number of consecutive days of data collection. PRU was measured for all patients on 22 acute care units (17 medical/surgical and 5 intensive care units) both for performance improvement/quality assurance and to comply with regulatory standards. Daily prevalence was measured for each unit for 21 consecutive days, for a total of 6,985 observations. Measurements included direct observation by trained observers, medical review, and nurse interview. The researchers graphed cumulative data for days 1 to 21 in order to determine whether mean prevalence varied based on the number of days of measurement. They also compared prevalence rates for weekends and weekdays, morning and evening, and 7, 14, and 21 consecutive days versus 7 nonconsecutive days. Prevalence rates appeared to stabilize at approximately day 10 for medical/surgical units and day 15 for intensive care units. Examination of data for each of the 22 units showed similar trends, although there was greater variability within certain units. No differences were found in prevalence rates when comparing weekday or weekends, morning and evening observations, or 7 consecutive

days with 7 days based on every 3rd day, as well as 14 or 21 consecutive days. Thus, as few as 7 days of measurement yields prevalence estimates that are not significantly different from 21 days of measurement. The 7 days may be consecutive or nonconsecutive (every 3rd day).

Frequency

Two studies of the frequency of restraint application were reported. Frengley and Mion (1986) studied general medical wards of an acute care hospital; there were 1,197 unrestrained patients and 95 restrained patients. Among restrained patients, 28% were restrained multiple times. Minnick and colleagues (1989) reported that restraints were applied once, twice, and three or more times in 52%, 15% and 33% of patients.

The timing of restraint application has not been widely reported. Macpherson and colleagues (1990) studied nurses caring for each of 102 restrained patients; more restraints were applied on the evening shift than on the day or night shifts. Whitman and colleagues (2001) conducted a secondary analysis of prospective, observational data from a large outcomes database for 10 acute care hospitals. Monthly data were obtained from 94 patient care units for periods ranging from 1–12 months for a total of 566 cumulative months during 1999. More restraints were applied on night shifts than on day or evening shifts, and most were applied after midnight. Minnick et al. (1998) did report restraint rates of 5.8% for the period between 5:00–7:00 am. and 5.7% for the period of 6:00–8:00.pm. These periods were chosen since staffing may be lower from 5:00–7:00 am. and confusion may be more likely at nighttime from 6:00–8:00 pm. Both of these circumstances could result in increased PRU. On the contrary, Mion, Frengley, Jakovcic, and Marino (1989) reported that on both medical and rehabilitation units, restraints were applied most often on the day shift, with the least restraint occurring at nights.

Type of Device

Many types of devices inhibit patients' freedom of movement, including vest jackets, lap belts or sheets, mittens and ankle/wrist ties, bedrails, and geri-chairs (Marks,1992). Wrist and jacket or chest restraints are commonly used in the acute hospital setting in North America (Morse & McHutchion , 1991; Moss & La Puma, 1991), with elderly patients being restrained more frequently and for longer periods

than younger patients (Frengley & Mion, 1986). A descriptive, cross-sectional study of 254 nurses working in intensive care units, emergency departments, and neurosurgery wards in four Turkish hospitals demonstrated that wrist restraints (96%) were most often used (Demir, 2007).

Disagreement exists concerning the definition of a mechanical device. Some believe that wrist or leg restraints, handmitts, geri-chairs, and full bedrails are restraints; others do not believe that geri-chairs and full bedrails are restraints (Bower & McCullough, 2000). The nature of bedrails is less clear and has been viewed both as a restraint and as a safety device. Bedrails are commonly used to minimize falls from hospital beds, but descriptive studies have shown that falls occur from bed despite the use of bedrails (Evans, Hodgkinson, Lambert, Wood & Kowanko, 1998).

Physical restraints were used both in beds and chairs. The most frequently used restraints in bed were bed rails (85% to 98%) (Hamers, Gulpers & Strik, 2004; Liukkonen & Laitinen, 1994) and in chairs, waist belts (57%) and geriatric chairs with fixed tables (36%) (Hamers, Gulpers & Strik, 2004; Karlsson et al, 2001; Strumpf & Evans, 1987, 1988). Lever and colleagues (1994) found that double bed rails were the most commonly used restraint with acute (54%) and chronic (48%) patients. About 2.5 million hospital and nursing home beds are in use in the U.S. Between 1985 and 1999, 371 incidents of patients caught, trapped, entangled, or strangled in beds with rails were reported to the U.S. Food and Drug Administration. Of these reports, 228 people died, 87 had a nonfatal injury, and 56 were not injured because staff intervened. Most patients were frail, elderly or confused (Goldman, 2006).

Side rails/bedrails are defined as physical restraints or restrictive devices that are often used with older patients (Capezuti, 2004). They are frequently regarded as a safe and routine intervention for the prevention of falls and subsequent injury. Studies show, however, that siderails do not necessarily prevent older people from transferring out of bed unassisted and may even lead to more serious fall-related injuries and death. The greater the distance of a fall, the more likely an injury will occur (Capezuti, Talerico, Strumpf & Evans, 1998). When older patients exit the bed by climbing over elevated bedrails, perhaps catching their arms or legs in the rails, transferring activity becomes dangerous and increases fall risk (Hanger, Ball and Wood, 1999), including susceptibility to injury, such as fracture, contusions, and lacerations.

Bed rails have potential benefits and risks (Goldman, 2006). Potential benefits of bed rails include: 1) aiding in turning and repositioning within the bed; 2) providing a hand-hold for getting into or out of bed; 3) providing a feeling of comfort and security; 4) reducing the risk of patients falling out of bed when being transported; and 5) providing easy access to bed controls and personal care items. Potential risks of bed rails may include: 1) strangling, suffocating, bodily injury or death when patients are caught between rails or between bed rails and mattress; 2) more serious injuries from falls when patients climb over rails; 3) skin bruising, cuts, and scrapes; 4) agitated behavior when bed rails are used as a restraint; 5) isolation or unnecessary restriction; and 6) limitations in performance of routine activities of daily living. Potential risk factors for bedrail injury include advanced age (over half of injuries occur in persons 85 or older), being female, low body weight, partial independence in transfers, and cognitive impairment. (Hanger, Ball & Wood, 1999).

Rationale for Physical Restraint Use

Decisions on the use or avoidance of physical restraints in elder care are made in response to the behavior of patients and the need for safe environments where risks of harm are minimized. Behaviors that typically lead to application of a physical restraint have been described by nursing staff as disruptive, difficult, asocial, bizarre, deviant or inappropriate (Beck, Rossby, & Baldwin, 1991; Beck & Shue, 1994; Burgener, Jirovec, Murel & Barton, 1992; Cohen-Mansfield, Marx & Werner, 1993; Hantikainen, 1998; Liukkonen & Laitinen, 1994; Marks, 1992; Master & Marks, 1990; Minnick et al, 1998; Rosby, Beck & Heacock, 1992; Ryden, Bossenmaire, & McLachlan, 1991; Tilley & Chambers, 1999; Whall, Gillis, Yankou, Booth & Beel-Bates, 1992). The decision to apply physical restraints often is based on the belief that the patient, if unrestrained, will intentionally or inadvertently remove intravenous lines, tubes, drains, or life-sustaining equipment (Stratmann et al, 1997; Thomas, Redfern, & John, 1995; Tilley & Chambers, 1999). In addition, nurses and physicians appear convinced that physical restraints protect the confused patient from major injuries that result from falls (Minnick et al, 1998; Riegle, 1996; Thomas, Redfern, & John, 1995).

Studies show wide variation in the decisions and motivations of nurses in response to individual cases. Nurses indicate that they are most likely to use restraints

to prevent patients from falling, to protect medical devices (i.e., intravenous lines, nasogastric tubes, foley catheters, and endotracheal tubes), and to control agitated behavior or wandering. Additionally, a significant reason for applying restraints is fear of liability subsequent to falls or unsafe behavioral symptoms (Marks, 1992; Capezuti, 2004). Macpherson, Lofgren, Granieri, and Myllenbeck (1990) studied nurses and physicians caring 102 restrained patients; nurses and physicians reported similar reasons for the use of restraints among elderly and cognitively impaired patients with multiple chronic diseases. In Choi & Song's study (2003) in a Korean Intensive Care Unit, 29 nurses applied or removed the restraints at least once; the most common reason for restraint application was to keep the patient from removing medical devices. This was also the case in other studies in ICU (Minnick, et al., 1998) and general wards (Macpherson, et al., 1990), explaining why nurses tend to overuse restraints to prevent removal of medical devices or for convenience (Hardin, et al., 1994).

Happ (2000) conducted a study on the nurse's role in preventing treatment interference in critically ill patients, which included observation of 45 patients and interviews with their nurses. The results focused on a smaller sample of 16 older patients, aged between 64 and 87 years old. Happ concluded that maintaining technological devices is almost exclusively a nursing responsibility and that critical care nurses are most protective of those devices, especially where accidental removal is considered life threatening. Reasons for physical restraint are cited in a systematic review of 23 studies (Evans, Wood, Lambert & FitzGerald, 2002), including three observational, two interpretive, and eighteen descriptive studies. Patient-oriented reasons predominate, including maintaining patient safety, managing agitation and aggression, exercising behavioral control, and preventing patients from wandering. Staff-oriented reasons include facilitation of work schedules and organizational goals, maintenance of a comfortable social environment, and prevention of treatment interference. Compliance with the wishes of family members (Hardin et al., 1993) and fear of litigation (Evans & Strumpf, 1990) are also cited in the literature.

The risk of legal liability to hospitals as a result of patient harm has been a focus of concern with regard to physical restraint, especially in the U.S. Fear of liability is often the major reason cited by nurses for using physical restraints. In addition to the legal issues, there are ethical implications as well. Nurses have stated

the moral dilemma between applying restraints and allowing patients greater autonomy (Quinn, 1993). Nurses express guilt when using physical restraints, but believe alternatives are not available (Karlsson, Bucht & Sandman, 1998). Nurses respect patients' rights but also feel compelled to initiate restrictive measures for patients with a potential for injury to themselves or others (Liukkonen & Laitinen, 1994). McHutchion and Morse (1989) reported that nurses empathize with restrained patients and would not wish to be in a similar position.

Additional rationale for use of restraints includes inadequate staffing, dislike of chaotic wards, intolerance of deviant behavior, and pressure from families. A common argument is that use of restraints is unavoidable at times of low staffing (Frank, Hodgetts, & Puxty, 1996). Scherer, Janelli, Wu, and Kuhn (1993) studied 235 acute-critical care nurses and found that even though 65.6% of nurses were not confident in the care of restrained patients, they used restraints anyway, especially when short-staffed. Matthiesen, Lamb, McCann, Hollinger-Smith, and Walton (1996) studied 281 nurses and found that 36% of nurses used restraints when understaffed. Tilley and Chambers (1999) interviewed eight nurses on determinants of decisions to use physical restraints with hospitalized elderly patients in Hong Kong; restraint was justified based on shortages of nursing manpower. Elsewhere, Minnick, and colleagues (1998) reported that less than 1% of nurses felt restraints were due to low staffing levels.

Restraint of patients actually requires increased nursing time to comply with standards for regular monitoring, release and documentation (Wilson, 1996). The use of restraint as a substitute for adequate supervision cannot be condoned. The study of Whitman and colleagues (2001) in 10 acute care hospitals with 94 patient care units did not support the inverse association between staffing levels and restraint use. They found a weak positive relationship (r 0.28, $p < .0001$) between staffing and restraint use at the system level, and units with higher staffing levels also had higher baseline restraint use.

Overall, the literature refutes the rationale that physical restraints prevent injury and protect patients from harm. In fact, the assumed benefits from use of physical restraints are unproven and contradicted by numerous reports of injuries and deaths associated with the use of physical restraints. Blakeslee, Goldmen, Papougenis

and Torell (1991) noted no scientific basis to support that physical restraint safeguards a patient from injury. In fact, patient safety can be compromised by physical restraints, including death from strangulation (Miles & Irvine, 1992; Starter & Libow, 1992; Tinetti, Liu, & Ginter, 1992).

Falls on the ward are common, often injurious, and result in impaired rehabilitation, anxiety and depression. They are associated with prolonged hospital stays. They lead to anxiety or guilt among staff and to unhappiness among carers and relatives and in turn to complaint or litigation. Thus, such falls pose a risk to individual patients and to organizations (Horse, 2002). From observational studies (Morse, 1996; Oliver, Britton & Seed, 1997; Oliver, Seed & Martin, 2002), they found that 60-70 % of all falls in hospitals occur from the bed and about 50% occur in patients who fall repeatedly. Frengley and Mion's study (1998) and Ginter and Mion (1992) have shown 50-90% and 10-47%, respectively, of falls from bed in hospital occur despite bedrails being applied. It is certainly counter intuitive to many to discover that bedrails do not prevent falls or that people fall in hospital precisely because they are ill on admission and not because the hospital is to blame. We need to consider whether current nursing establishments on wards caring for frail, acutely ill older patients are adequate and whether ward design and equipment are optimal for patient safety (Horse, 2002).

No clinical trials have ever demonstrated the effectiveness of physical restraints, and the preponderance of data suggests that physical restraints do not prevent falls or the inadvertent or intentional removal of medical therapies. Shorr and colleagues (2002) determined the relationship between physical restraints and falls in acute hospital settings with 228 patients who fell and 228 matched controls; and reported that patients with orders for restraints were more likely to fall than patients without orders for restraints. Studies have shown that the incidence of patient falls and the risk of injury from falls increase in restrained patients. Patients have been known to untie restraints and fall in the process of restraint removal (Evans & Strumpf, 1990; Houston & Lach, 1990). It appears that physical protection is more of a concern to staff than the negative psychological consequences for patients of being physically restrained; awareness of the latter issue was low (Suen, et al., 2006).

Alternatives to Physical Restraint

Alternatives to restraint can be categorized as 1) physical alternatives, 2) psychosocial alternatives, 3) activities, and 4) environments (Strumpf, Evans & Schwartz, 1990). Physical alternatives include positioning, evaluation of drugs, toileting, comfort, pain relief, change in treatment, massage, sensory aids, and hydration. Psychosocial alternatives include authorization of "no restraint" from person/family, provision of sense of security, attention to person's agenda, and active listening. Examples of activities are daily physical therapy/ambulation, gait training, distraction, recreation, and exercise. Environmental options include contoured chairs, low beds, alarm systems, background music, camouflage, noise reduction, controlled lighting, and personal space. The use of alternatives is predicated on careful assessment of the patient and environment. These include environmental manipulation, such as electronic surveillance devices; programs and activities specifically geared to the cognitively-impaired individual; specific interactions and approaches to reduce or manage wandering behavior; behavioral consistency among all personnel toward wandering patients; and full administrative support to forego use of restraints.

Several reports exist of units or facilities that are either completely restraint-free or have dramatically reduced the use of physical restraints. All are similar in that they have: 1) comprehensive approaches in caring for patients with severe cognitive and/or physical impairments; 2) administrative approval and support; and 3) staff awareness and education. Imperative to achieving restraint minimization is identifying alternatives to restraint use. Although many restraint alternatives have been cited in the literature, few have been rigorously evaluated (Evans, Wood, Lambert & FitzGerald, 2002). A number of studies have demonstrated that the use of physical restraints can be reduced by using a variety of alternatives; however, it has not yet been determined which alternatives are most effective for which patients (Sabangan, Katz, & Flicker, 2005).

Negative Consequences

Ensuring patient safety is one of the main reasons given for use of physical restraints. Although physical restraints might reduce some hazards and ensure patient safety, a body of evidence demonstrates the negative consequences of physical

restraint. Janelli (1989, cited in Varone et al., 1992) referred to Newton's Third Law of Physics for understanding the emotional response to being restrained: To every action there is an equal and opposite reaction. Thus, resistance to being restrained is a powerful and natural phenomenon. Increased agitation and restlessness result as the person struggles to be free of the restraint. Despite abundant evidence citing the dangers of physical restraints, almost no evidence indicates that physical restraints are beneficial (Marks,1992).

In the acute care setting, restrained patients are often severely ill and may have restraint devices to ensure life sustaining treatment. There is a correlation between restraint use and complications in hospital such as falls, nosocomial infections, greater severity of illness, and longer lengths of stay (Bourbonniere et al., 2003; Brower, 1991; Frengley & Mion, 1986; Miles & Meyers, 1994; Mion et al., 1989, Tinetti, Liu & Ginter, 1992). Lofgren, MacPherson, Granieri, Myllenbeck, and Sprafka (1989) found that prolonged use (more than 4 days) of mechanical restraints was the strongest independent predictor of nosocomial infections and new pressure ulcers. It is often difficult to distinguish the effects of restraint use and the severity of illness in determining the causes of increased morbidity and mortality (Robbins et al., 1987).

Some studies in acute care settings show a higher mortality rate in those restrained, but defining the precise cause of death in such patients is difficult (Frengley & Mion, 1986; Mion et al., 1989; Robbins et al., 1987). Death may be an indirect result of restraint use, following a fall, fracture, or nosocomial infection, or alternatively, the result of the underlying reason for restraint use. Deaths linked directly to the use of physical restraint, such as strangulation or asphyxiation, have been reported (Frengley & Mion, 1986; Miles & Irvine, 1992; Robbins et al., 1987). Clearly, the high morbidity and mortality associated with physical restraints raises questions about their therapeutic value.

Deleterious effects from the application of physical restraints are experienced not only by patients, but also by nurses. Most nurses experience a huge range of negative emotions when using restraints, including anxiety, inadequacy, hopelessness, frustration, fear, guilt, dis-satisfaction, resignation, repugnance, vengeance, moral distress and ethical dilemmas between the duty to respect the patient's right of self-determination and the duty to protect those in their care (Helmuth, 1995; Liukkonen &

Laitinen, 1994; Mattiasson & Andersson, 1995; Strumpf & Evans, 1988). Guilt is perhaps expressed in part by the current tendency to change the term “restraint” to “protective device”, as the notion of restraint becomes less acceptable (Brower, 1991). Emotional sequelae may also extend to family members. Kanski, Janelli, Jongs and Kennedy (1996) studied the perceptions of 25 family members toward restraint use in a hospital setting and found that 40% were upset or uncomfortable seeing loved ones restrained. A systematic review of relatives’ negative experiences with physical restraint included anger and discomfort (Evans, Wood, Lambert & FitzGerald, 2002).

Patient Characteristics and Physical Restraint Use

Patient characteristics are often mentioned in the literature as a factor related to PRU. Several studies have shown a relationship between patient characteristics (cognitive impairment, impairment in activities of daily living, older age, history of falls, and impairment in mobility) and PRU, and they have compared restrained to nonrestrained patients to determine risk factors for physical restraints. Risk for physical restraints are three to four times greater if a patient has at least one of the following characteristics: old age, high severity of illness, multiple medical problems, cognitive impairment, physical impairment, or a psychiatric condition, history of surgery, or medical devices that restrict mobility (Macpherson et al., 1990; Mion & Strumpf, 1994; Mion et al., 1989).

Characteristics of restrained patients are reported in a systematic review (Evans, Wood, Lambert & FitzGerald, 2002). Four studies were conducted in acute care settings and three studies were conducted in residential care settings. In acute care settings, those more likely to be restrained during a hospital stay were 60 years or older, had a psychiatric diagnosis, cognitive impairment, were bedridden, exhibited disruptive behaviors, or were at risk for falls. In residential care settings, restraints were more commonly used for frail residents, and factors such as incontinence and inability to perform self care activities independently increased the likelihood of physical restraint use.

In a review of the literature, Evans and Strumpf (1989) identified predictors of restraint use that could be divided into two main groups: patient factors and system factors. Patient-related factors included age and cognitive impairment, risk of injury to

self or others, physical frailty, presence of a monitoring or treatment device, and the need to promote body alignment. System-related factors included avoidance of litigation, staff attitudes, levels of staffing, and availability of restraint devices. Cognitive impairment is consistently cited as the most frequent predictor of restraint use in hospitals (Burton et al., 1992; Sullivan-Marx et al., Strumpf, Evans, Baumgarten & Maislin, 1999). Patients with cognitive impairment are generally at risk for accidents, are less able to comply with medical treatments and regimens, and sometimes behave aggressively or disruptively.

Gallinagh, Slevin, and McCormack (2002) reported patient variables including age, gender, and diagnosis. The average age of restrained patients was 77 years and 75 years for the non-restrained. There was no significant difference in age between restrained and non-restrained patients. A chi-square test confirmed that there was no significant difference between males and females in relation to restraint and non-restraint use. The most common medical diagnoses for restrained patients were stroke and fractures. A chi-square test confirmed that there was a significant difference in stroke between restrained and non-restrained patients.

Healthcare Staff Characteristics

A descriptive correlation study (Myers, Nikoletti and Hill, 2001) was conducted in an acute-care hospital to explore the relationship between nurses' use of restraints and attitudes toward restraint use and the elderly by using two research instruments: 1) Perceptions of Restraint Use Questionnaire (PRUQ) and 2) Attitudes toward the Aged Semantic Differential (ASD). There were no significant differences between scores on the PRUQ and the ASD based on gender, area of work, level of practice, initial training/education and the use of restraints in the past 12 months. In addition, no correlations were found between years of nursing care, age or number of times restraints were used in the last 3 months, and scores on either of the attitude scales. For the PRUQ, there was a significant difference between mean scores based on type of shift worked. Those working on permanent day shift placed less importance on the use of restraints than those working all shifts. There was no significant difference for the ASD for this variable.

Karlsson, Bucht, and Sandman (1998) found that there were no significant differences between the respondents' demographic data (sex, age, practice setting, years in elder care) and attitudes score. Furthermore, knowledge among staff regarding regulations for the use of physical restraints was poor. There was a significant difference in knowledge scores between professions. The nurse aids had a significantly lower score than registered nurses and physicians, and licensed practical nurses had significantly lower scores than physicians. No significant differences were noted between practice settings regarding knowledge scores. Weiner, Tabak, and Bergman (2003) found that greater knowledge among respondents decreased the likelihood to use restraints in both realistic and idealistic situations.

Healthcare Staff and Family Member Attitudes toward Physical Restraint Use

Healthcare Staff Attitudes toward Physical Restraint Use

Factors promoting PRU with elderly patients in acute care settings depend to some extent on the attitudes of nurses toward restraints and the elderly. Negative attitudes toward the elderly may increase PRU in acute care settings, although no research studies confirm this hypothesis. The relationship between attitudes toward physical restraint and the elderly were examined (Helmuth,1995). A significant relationship was found between negative attitudes toward older patients and favorable attitudes toward PRU; elsewhere, Myers, Nikoletti, and Hill (2001) identified that slightly positive attitudes toward the elderly and use of physical restraints were related. Neither study demonstrated significant relationships between nurses' use of physical restraint and their attitudes toward PRU and the elderly. Furthermore, nurses' attitudes did not predict their self-reported use of physical restraints.

Nurse attitudes toward the behavior of older people also may influence PRU. Nurses' responses to older people's behavior varied among nurses, even in similar situations (Everitt et al.,1991). How behavior is interpreted, the way in which it is defined, the meaning that is attached to it, and the response it evokes are primarily dependent on nursing staff perceptions (Carveth & Trexler, 1996; Sternberg &

Whelihan, 1991). When position, education, and clinical experience were correlated with nursing attitudes about restraint use, differences were found (Thomas, Redfern, & Reesa, 1995). Nurses' attitudes did not differ based on a medical, surgical, or critical care unit; negative attitudes about restraint use remained, regardless of setting (Schott-Baer, Lusis, & Beauregard, 1995). When nurses' perceptions were studied, the use of restraints depended on the behavior exhibited, level of responsibility in caring for patients, and characteristics of the facility (Fay & Cyndi, 2000).

In Helmuth (1995)’s study, attitudes toward the use of restraints were slightly favorable. Subjects described using restraints as an important nursing intervention for ensuring the safety of older patients. In particular, preventing falls was identified as a strong indication for the use of restraints. Another perceived benefit of restraints was protecting therapeutic devices. Subjects identified protection of feeding tubes and sutures in particular as the most important reasons for using restraints. This may be related to how serious the subjects perceived the consequences of dislodging these specific devices and the difficulty involved with replacing them in comparison to dressing or intravenous catheters. Subjects described restraints as less important when dealing with behavior problems such as wandering, agitation, stealing, or bothering others. These differences may reflect concern by subjects for patient safety and their personal liability in the event of an accident. While the above mentioned behaviors may be a nuisance, they do not pose the same liability risk as a fall or accident. These results support findings of others that suggest nurses use restraints to prevent accidents despite evidence indicating their ineffectiveness for this purpose (Evans & Strumpf, 1989, 1990). Nurses may believe that use of restraints provides evidence of intervention to prevent an accident, thereby reducing the risk of accusations of negligence.

Family Member Attitudes toward Physical Restraint Use

Studies of family members’ perceptions of physical restraint reveal strong emotional responses when seeing loved ones restrained (Elk & Ferchau, 2000, Riegle, 1996). Conversely, families may question why restraint devices are not used to secure invasive devices, viewing restraint as an expected standard for patient safety. Although families may desire involvement in patient care, they may also be fearful of

taking responsibility, e.g., redirecting a patient who is confused or agitated. Families may therefore request that physical restraint be used (Martin, 2002). In fact, family members can be a watchful and calming presence, yet some family members are unable or unwilling to assume responsibility for maintaining technologic devices. Few families can supply around-the-clock support.

Most family members are not informed about physical restraints, including possible harms. Failure to address family members' concerns and anxieties regarding physical restraint can erode trusting relationships (Riegle, 1996). In studies about family perceptions, most families were upset and wanted more information about the consequences of restraint. Many did not understand why restraints were used and did not know of their physical and psychological harms (Hardin et al., 1993; Kanski, et al., 1996). Families can be assessed individually to determine their knowledge and willingness to participate. They can be informed of the interventions that have been implemented to promote patient safety and taught the steps they can take to help. Families should be assured that patient safety is of utmost importance, but care should be taken to avoid a false sense of security. As with all treatments provided, the risks and benefits associated with the use or nonuse of physical restraint should be addressed. Failure to address the family's concerns and to inform them of the need, risks, and benefits of interventions can irrevocably damage their trust of the health care team. (Martin, 2002, Quinn, 1996).

Organizational Environmental Aspects

Organizational characteristics play an important role in the use of physical restraints because of the continuous interactions among patients, systems, and caregiving staff. Decision making on the use or avoidance of physical restraint is complicated, on the one hand, by various external factors, such as institutional policy, legal and ethical issues, standards of practice, family and other societal pressures, and nurses' professional values; and on the other hand by a number of internal factors, including nurses' personal values, attitudes, and ethical/philosophical stance (Janelli, Dickerson & Ventura, 1995; Kikuta, 1991; Mahoney, 1995; Morse & McHutchion, 1991; Molassiotis & Newell, 1996; Scherer et al., 1991; Sullivan-Marx, 1996; Werner, Cohen, Koroknay & Braun, 1994).

Institutional Policies on Physical Restraint Use

Health service system in Thailand will be described first and followed by policies on PRU.

Health service system in Thailand is classified into five levels according to the level of care (Thailand health profile, 1999-2000), including self-care level, primary health care level, primary care level, secondary care level, and tertiary care level. Services at self-care level and primary health care level related to health promotion, disease prevention, curative care, and rehabilitative care. Primary care provides basic services emphasizing uncomplicated health problems. The components of primary care level units consist of community health posts, health centers, outpatient care, private clinics, and drugstores. Secondary care level is provides by medical and health personnel with various degrees of specialization. They compose of community hospitals, general hospitals, and private hospitals. Tertiary care is provided by medical and health professionals, mostly with specializing expertise. They include regional hospital, university hospitals, and public large hospitals belong to Ministry as Local Administrative Organization.

Secondary care and tertiary care are hospitals with services focusing on inpatient healthcare. Tertiary care is specialist healthcare hospitals with services equipped with high technology. Secondary care may accept patients referred from primary care hospitals, whereas tertiary care may accept patients with serious health problems referred from primary care and/or secondary care for treatment and care as inpatients. Songklanagarind Hospital, an 838-bed teaching and tertiary care facility of the Prince of Songkla University, is one of the leading hospitals and a large medical referral center in the southern region of Thailand receiving patients from other provinces. Elderly Thais with health problems are often admitted to hospitals. The prevalence of hospitalization among Thai elders is 28.1% (Assantachai & Maranetra, 2005). The hospitalized elders are at risk for use of physical restraints, especially when presenting with altered mental status, fall risk, poor mobility, and complications of chronic illness.

In the United States, restraint in nursing home is govern by the Omnibus Budget Reconciliation Act of 1987 (OBRA); it became effective in 1990. Nursing home residents have the right to be free from physical or chemical restraints that are

not required to treat specific medical symptoms (Janelli, Kanski, & Neary, 1994). Since OBRA was introduced, it has had a major influence on restraint reduction. The restraint rate nationally declined from 41% pre-OBRA to 21% by early 1995 (Cohen, et al., 1996). Several studies after 1995 described achieving much lower rates of restraint use. The study of Stratmann and colleagues (1997) found that the frequency of restraint use decreased by almost half, from 25% to 14%. In addition, falls did not increase, but those falling were less likely to be restrained. Dunn's study (2001) used incident reports from a purposive sample of 97 older adults, which were analyzed before and after implementation of a restraint-free policy. The results indicated no significant difference in the number of falls before and after the policy change.

Only 28 (42%) of the staff surveyed by Hardin and colleagues (1994) believed that they would receive administrative support if a patient who was not restrained fell. The staff were concerned about patients falling. Obviously, fear of lawsuits subsequent to patient falls remains a pivotal rationale for nurses' application of restraints. However, the staff in the Hardin study perceived that administration might not support them if they removed a restraint from a patient and a fall or other "incident" occurred.

In an effort to enhance patient safety, regulatory and governmental policy initiatives aimed at minimizing or eliminating PRU in acute care settings have been implemented in the U.S. These policy initiatives have evolved from ongoing research, as well as advocacy and regulatory efforts. Many hospitals have revised restraint policies to minimize PRU. In one study, the implementation of policy change did not significantly change nurses' attitudes about restraint use (Schott-Baer, Lusis, & Beauregard, 1995). No other studies on policy change were located.

Standards of Practice

The use of physical restraints is a controversial issue presenting nurses with legal, ethical and practical dilemmas. Physical restraints increase a person's vulnerability to neglect, harm, and exploitation and are associated with significant physical harms and devastating psychologic consequences. The central values of respect for persons, preventing harm, and promoting positive outcomes often conflict with application of physical restraints (Riegle, 1996). Nurses often find themselves

acting as “double agents”, trapped between the duty to protect patients’ rights and the obligation to follow institutional policies (Weiner, Tabag, & Bergman, 2003).

The moral tradition of nursing arises from the Code for Nurses, which emphasizes the nurse’s obligations to do no harm or *non*-maleficence and to promote good or *beneficence*. In the Code, the nurse’s primary commitment is to the patient’s health, welfare, and safety. Although the Code addresses the issue of safeguarding the client from harm inflicted by others, the extension of this duty to protect the patient from all harms often follows (Riegle, 1996). Physical restraints often emerge as the primary intervention for reducing potential harms throughout the hospital stay, including self-harm.

The primary ethical concern associated with the use of physical restraint is the conflict between the principles of beneficence and autonomy. The principle of beneficence, to do only good for the patient, is a guiding principle and strong motivator for nurses. Yet the principle of autonomy, the right of the individual to choose his or her own course of action, is also central to the philosophy of the nursing profession and to the field of geriatrics (Reigle, 1996). Each individual evaluates possible courses of action in everyday life and decides on the course that he or she values most. This decision does not necessarily take the course of least risk. Values held by the individual will influence his or her decision. The episode of a fall in an elderly unrestrained patient is likely to elicit feelings of guilt and remorse among nursing and medical staff, and families, for not anticipating and preventing the fall.

The use of physical restraints creates a clash between the rights of freedom and dignity and the rights of personal safety and autonomy. In many instances, not every right can be defended and nurses must decide on priorities. This clash raises serious ethical questions: Should a behavior be evaluated according to personal intentions, to consequences, or to accepted norms? The ethical measure of a given behavior is partly situational; to fulfill one ethical principle, another may be minimized. An ethical problem may mean choosing between good and bad, yet the definition of “good” and “bad” is problematic; what is good now might later turn bad and vice versa, and what is good for one might be bad for another (Weiner, Tabak, & Bergman, 2003).

The harms associated with PRU often are examined in terms of physical or psychologic injury, rather than as violations of individual rights. A restrained patient is

unable to exercise his or her right to autonomy or privacy and must depend on the nurse and others for basic needs. This dramatic loss of independence magnifies vulnerability in populations already at risk for abuse (Riegle, 1996).

Documentation concerning the use of physical restraints among non-psychiatric patients is inadequate (Macpherson et al., 1990; Morrison, Crinklaw-Wiancko, King, Thibeault & Wells, 1987). Among hospitalized patients, documentation of restraint use was absent (Karlsson, Bucht, & Sandman, 1998) or sparse in 22–57% of the hospital records (Robbins et al., 1987; Mion et al., 1989). Written physician orders to initiate restraints were present in the medical records for only 29% of medical and 53% of medical rehabilitation patients in the work of Mion and others. Patients are often restrained without any physician order and for unclear reasons. Restraints are most often ordered by a physician because nurses request them. In some cases, the nurse initiates the restraints without an order. In a retrospective chart review of 156 patients, Kow and Hogan (2000) determined overall inadequate documentation at a medical center in Canada.

Nurses are responsible for most decisions regarding the use of physical restraints and the care of patients in restraint (Brower, 1991; Hardin et al., 1994). Hospital nursing personnel often find themselves in the position of deciding what is best for patients, often guided by the principle of safety first (Maruschock, 1996). Macpherson and colleagues (1990) surveyed the general medical wards in an acute care hospital and found that nurses initiated the use of physical restraints in 76% of patients, with physician orders for only 28%, and 15% of attending physicians unaware that their patients had been restrained. They also noted poor agreement between nurses and physicians concerning the reasons to restrain, as well as poor documentation. As Hardin and colleagues (1994) reported, the decision to restrain patients was not an independent one. Only 3 (4%) nursing staff reported that they alone made the decision to restrain patients, while 4 (6%) said they consulted with a peer, 22 (32%) with a physician, and 39 (58%) with the head nurse or team leader.

Regarding informed consent, its purpose is to protect the autonomous choices of vulnerable persons. Consent for medical therapies and interventions should be based on the magnitude and probability of the risks associated with the proposed intervention. Because the risks associated with the use of physical restraints are

significant, consent for their use is essential. Patients or surrogates should be provided with information regarding the reasons for physical restraint and be involved in the decision making process. Nurses have a moral responsibility to uphold and respect the patient's dignity and autonomy, regardless of the patient's ability to reason or comprehend the information (Riegle, 1996).

Unilateral decision making on behalf of the patient can lead to decisions that reflect the values and beliefs of the decision makers, rather than those of the patient or surrogate. The term *paternalism* refers to situations in which one overrides another's decision or action to maximize benefits or prevent harm to that person. From this viewpoint, the requirements of beneficence prevail and compel the nurse to limit the patient's actions and choices for beneficial reasons. This broad interpretation of beneficence also can lead to acts that exaggerate the concept of professional responsibility. Upholding the principle of beneficence should not be interpreted as an authorization to act against the patient's wishes, even if the nurse believes it is for the patient's benefit (Riegle, 1996).

Despite the distaste for paternalistic actions, there are circumstances in which such acts are justified. When a patient is in danger of a serious, yet preventable, harm or when the patient's behavior threatens the safety of others, paternalistic actions may be defended. It is ethically permissible to intervene and limit a person's autonomy when that individual presents a potential danger to others. Paternalistic action should only be taken, however, when the intervention is likely to prevent harm. Because paternalistic actions suppress another's autonomy, it is essential for the nurse to choose an intervention that is the least restrictive and yields the least infringement to individual freedom (Riegle, 1996).

The dilemma of nursing staff in reference to use of restraints was examined in a realistic situation (i.e., as reflected in daily work) and in an idealistic situation (i.e., as reflected in values and personal beliefs) (Weiner, Tabak, & Bergman, 2003). This issue is important, as the extent of awareness of ethical dilemmas about use of restraints and the ways to confront them in daily work, affect the behavior of staff. In this study, situations and circumstances affected nurses' ethical preferences. The use of restraints was higher in a realistic situation than in an idealistic situation (i.e., there is a gap between personal beliefs about restraints and actual use).

Despite a developing awareness of the physical, psychological, and ethical problems associated with the use of physical restraints with frail elderly, the practice not only remains widespread, but appears to be accepted as inevitable.

Conclusion

Based on the literature review, physical restraints are commonly used and have a high incidence among hospitalized elderly patients due to many factors. Published studies indicate that the prevalence of PRU in both acute and long-term care settings remains significant, but is not supported by evidence of efficacy or safety. Restraints may be necessary in an emergency situation for the immediate safety of the patient, but most of the time, restraints are used to manage behavior and prevent falls. In these circumstances, the use of physical restraints provides no clear benefit, but does have the potential to cause serious injury, both psychological and physical, and even death.

Nurses have been primarily responsible for initiating the use of physical restraints. Various factors influence nurses' decisions to use physical restraint or alternative plans of care. These factors include patient, nurse, and system characteristics, outcomes resulting from a given plan of action, preference for one ethical principal over another, degree of risk taking, and environmental characteristics (Varone et al., 1992).

While it is up to individual nurses to determine what they consider to be ethically appropriate in practice, the limited guidance provided by institutional policy makers does little to support decision making (Chien, 1999). Levine, Marchello, and Totolos (1995) suggested that subjective decision-making about restraint use and limited documentation could be due to the absence of an institutional policy and a well-defined assessment framework for nurses.

In the U.S., based on research, practice guidelines, and regulation, a transition to restraint-free care is underway. In Thailand, however, the practice of physical restraint remains widespread and appears to be accepted as inevitable and perhaps unquestioned because of concerns about patient safety. The purpose of this study was to explore physical restraint and its contributory and contextual factors for Thai hospitalized elderly patients. A full description of the nature of PRU in Thailand is an important first step toward gathering evidence-based data aimed at reducing PRU and developing appropriate interventions.

CHAPTER III
METHODOLOGY

This descriptive, cross-sectional study utilized structured questionnaires and direct observation, to explore physical restraint use (PRU) for Thai hospitalized elderly patients. Through direct patient observation, prevalence, frequency, restraint type, and rationale for specific use for each restrained patient were determined. Rationale for general use for all restrained patients, healthcare staff and family member attitudes toward PRU, organizational environmental factors (policies/ standards of practice), healthcare staff characteristics (age, gender, education, work experience, specialized education in geriatrics, and training about physical restraint), and patient characteristics (age, gender, and cognitive status) were obtained through questionnaires (closed and open-ended).

Setting

The setting was Songklanagarind Hospital, an 838-bed teaching and referral facility of the Prince of Songkla University, Hatyai regional and medical center in Songkla Province. It was selected because 1) it is considered one of the leading hospitals and the quality of its care is well known in the southern region of Thailand; 2) it is a large referral center receiving patients from other provinces; 3) most Thai citizens from the South with serious health problems come to this hospital; and 4) Songkla Province is accessible to the researcher and is one of the large provinces in the southern region of Thailand. Furthermore, based on hospital data (2006-2008), 8,650-8,814 elderly patients (aged 60 years or above) are admitted to this hospital annually.

Songklanagarind Hospital has three types of wards: general care with 16 to 40 beds/ward; special/critical care with 5 to 15 beds/ward; and private care with 11 to 23 beds/ward. The hospital wards observed were the nine general care wards, including three medical wards, four surgical wards, and two orthopedic wards, because studies

from the United States and Europe suggest that these types of wards have high prevalence and incidence of physical restraint, at least until recently, when rates in the U.S. declined (except in critical care wards). Healthcare staff to patient ratios in these wards are 1 : 4-5. Private wards were not included in this study because 1) physical restraint is limited on these wards; 2) family members are allowed to be with patients 24 hours a day; and 3) most patients are not seriously ill. Furthermore, special/critical care wards were not included because there are many differences in the conditions and characteristics, treatment regimes, severity of illnesses, structure of the wards, and manpower levels on these wards (Minnick et al., 1998; Park & Lee, 1997; Whitehead et al., 1997). Healthcare staff to patient ratios in the special/critical care wards are much higher than in general care. Finally, the psychiatric ward was not included in this study as well.

Population and Sampling

The purposive samples consisted of six groups from nine wards to be observed: 1) 13 nursing administrators (one Director of Nursing, three Nurse Supervisors [one Nurse Supervisor monitored three wards], and nine Head Nurses); 2) all healthcare staff (registered nurses, practical nurses, and nurse aids); 3) healthcare staff who restrained elderly patients; 4) all elderly patients aged 60 and older; 5) restrained elderly patients; and 6) family members of restrained elderly patients. These purposive samples were voluntarily consented to participate in this study. Nine wards were observed including 1) Female Medical Ward; 2) Male Medical Ward 1; 3) Male Medical Ward 2; 4) Female Surgical Ward; 5) Male Surgical Ward 1; 6) Male Surgical Ward 2; 7) Neuro-Surgical Ward; 8) Female Orthopedic Ward; and 9) Male Orthopedic Ward.

Sample Size of Elderly Patients

The sample size of elderly patients was calculated by this formula (Lemeshow, Hosmer & Klar, 1990):

$$n = Z^2_{1-\alpha/2}P(1-P)/d^2$$

n = sample size

Z = standard errors (1.96, 95% confidence)

P = sample proportion (sample size will be largest when P equals 0.5)

d = precision (0.05)

$$n = (1.96)^2(0.25)/(0.05)^2 = 384.16$$

The sample size of elderly patients was 384 subjects. Four hundred and forty two elderly patients were observed to account for excluded cases or missing cases. Thirteen subjects were referred to other wards. Therefore, 429 subjects participated in this study. The population and sampling description is summarized in Table 1.

Table 1 Population and Sampling Description

Target population (6 groups) (9 wards)	**Sample size**	**Recruited samples/Inclusion criteria/ Exclusion criteria**
1) Administrators	13	Director of Nursing = 1 Nurse Supervisors = 3 Head Nurses = 9
2) Healthcare staff	310	Registered nurses, practical nurses, and nurse aids returned questionnaires.
3) Healthcare staff	27	Healthcare staff who restrained patients
4) Elderly patients	429	1. Age ≥ 60 years old 2. Admitted to nine wards over an observation time period 3. Communicating in Thai
5) Elderly patients	27	Patients who were restrained
6) Family members	27	1. key persons responsible for care and of importance to the patient who were restrained, 2. communicating in Thai

Instruments

Four questionnaires were used.

1. The Physical Restraint Use Observation Tool was adapted from the Restraint Use Observation Tool of Evans, Strumpf, Taylor, Capezuti, Maislin, and Jacobsen (1997). The original tool was developed to record physical restraint use in

elderly patients for nursing home research in the United States. There were no psychometric evaluations, but reliability was assured by having two observers observe status of each patient and agree immediately on restraint status of the patient. Word changes were made to reflect the Thai hospital context. Data were recorded on the tool by filling in the blanks, including day of week, ward, date and time, as well as age, gender, cognitive status, patient initials, reason for restraint (provided by the primary nurse), and type of restraint (vest, waist, ankle, mitt, side rails, others). (Appendix E)

For reliability in this study**,** the investigator was trained in the use of the Physical Restraint Use Observation Tool at a nursing home in the U.S. with Neville Strumpf who is one of the developers of the instrument. A research assistant for data collection was trained to use this instrument by the investigator. Subsequently, the inter-rater reliability between the investigator and the researcher assistant were examined with 10 elderly patients. Instrument reliability was established at 100% agreement for restraint use.

2. The Physical Restraint Use Questionnaire (Appendix F) was adapted from the Restraint Questionnaire for Staff (RQS) developed by Evans and Strumpf (1990). The original instrument, a 24-item Restraint Use Questionnaire, was developed to assess staff attitudes and perceptions regarding restraining patients in a nursing home. Items for this questionnaire were generated from a literature review designed to measure staff attitudes and perceptions toward physical restraint use. Several minor revisions and some additional items were added to modify the questionnaire to reflect the Thai hospital and Thai elders. There are six sections for a total of 24 items. Section I assesses attitudes toward physical restraint use, using 19 items with Likert-type responses, each having a 3 or 4 scale response. Responses are summed to arrive at a total score, with a range from 19 to 70. The higher the number, the stronger is the favorable attitude and likelihood of physical restraint use. The lowest possible score, “19”, indicates the least favorable attitude toward physical restraint use; the highest possible score, “70”, reflects the most favorable attitude.

Section II assesses alternatives to physical restraint with one item where healthcare staff can list any known alternative interventions to restraints. Section III addresses healthcare staffs’ anticipation of administrative support regarding removal

of restraints. Section IV involves intra-and interdisciplinary collaborative processes used in making restraint decisions. Section V assesses rationale for general usage of restraint having one item and rank-order from 1 to 5, with '1' meaning 'the most important reason' and '5' meaning 'the least important reason'. Section VI asks for an explanation of official institutional physical restraint policies and special guidelines.

This instrument was tailored for family members and healthcare staff. The Physical Restraint Use Questionnaire for family members consisted of only section I, whereas the Physical Restraint Use Questionnaire for healthcare staff consisted of section I - VI.

Instrument Validity, Translation, and Reliability

This instrument was validated by two American professors of gerontological nursing who do research on PRU in elders. Thai versions of these instruments were developed by the investigator via a process of translation and back-translation. They were translated from English to Thai. A person with fluency in Thai and English, and unfamiliar with the instruments, then translated each instrument from Thai back into English and an American gerontological nurse professor confirmed the accuracy of the translation, assuring content validity based on the original English version. A group of three experts (nurse educators who were expert in gerontological nursing) examined content validity of the Physical Restraint Use Questionnaire (PRUQ) by using a content validity index (CVI), using ratings of item relevance. A Likert-type, ordinal scale with four possible responses was used. The responses include a rating of 1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, and 4 = very relevant. Then, for each item, the CVI was computed as the number of experts giving a rating of either 3 or 4, divided by the total number of experts. The CVI of .80 or higher is acceptable (Davis, 1992). In this study, the CVI of the PRUQ was .86. Agreement to all items was requested. The items marked with "not agree" were revised.

A pilot test was conducted with 20 healthcare staff fitting the selection criteria of this study to assess understanding and assure reliability. The Cronbach alpha coefficient of the PRUQ was .50. The PRUQ was revised and tried with 20 newly subjects ($\propto$ = .72). The Cronbach alpha coefficient for main study (310 healthcare staff) was .61.

3. The Administrative Questionnaire (Appendix G) was designed by the investigator as a survey tool concerning policies/standards of practice/special guidelines related to physical restraint use. The questionnaire was used with all persons designated as administrators in the sample.

4. The Chula Mental Test (Appendix H) was used as a part of cognitive assessment with elderly patients. Several Western instruments for assessing cognitive impairment perform inappropriately in less developed countries, producing many false positives. This occurs because many items require literacy and a reasonable level of education. The development of an instrument for low education and literacy (Jitapunkul, Lailert, Worakul, Srikiatkhachorn, & Ebrahim, 1999) was derived from a review of existing instruments, selecting those items not requiring reading and writing ability. The 36 items obtained were then used with elderly people aged at least 60 years who had no evidence of psychiatric, behavioral, or psychological disturbance. Subjects were drawn from rural and urban clinical settings and a random sample from a Bangkok slum. Thirteen items showed no relationship with the educational level and were then considered by an expert panel for utility and domain of cognition covered.

The revised instrument, the Chula Mental Test (CMT) (Jitapunkul, Lailert, Worakul, Srikiatkhachorn, & Ebrahim, 1999), was then applied to 212 residents of an old people's home in Bangkok. The validity of the CMT was tested by comparison with a neurologist's independent diagnosis of dementia. Comparisons were made with the Mini-Mental State Examination and the Abbreviated Mental Test. The CMT at its optimal threshold had the best combination of sensitivity (100%) and specificity (90%) for detection of dementia. The test-retest repeatability and internal consistency were high. This test consists of 13 items. Responses are summed to arrive at a total score, with a range from 0 to 19. The lower the score, the greater the degree of cognitive impairment. The cut-off score is less than 15, meaning cognitive impairment. It takes about 3 minutes to administer. Instrument and sample-instrument descriptions are summarized in Table 2 and 3.

Table 2 Instrument Description

Name	Type	Recorded Data	Sample	Implementation time period	Interpretation
1. The Physical Restraint Use Observation Tool	Observation	Day of week, ward, date and time, age, gender, cognitive status of the patient, patient initial, reason for specific use for each restrained patient (provided by the primary nurse), and type of restraint	429 elderly patients on nine wards	Two shifts a day (day and evening)	For those patients found to be restrained, the primary was asked to give the rationale.
2. The Physical Restraint Use Questionnaire	Questionnaire	Six sections (24 items) I-attitudes toward restraints (19 items) II-Alternatives to restraints (1 item) III-staff perceptions of administrative support regarding removal of restraint (1 item) IV-intra-and interdisciplinary collaborative processes used in making restraint decisions (1 item) V-rationale for usage (1 item) VI-policies and special guidelines (1 item)	27 family members-section I 310 healthcare staff working in 9 wards – section I-VI 27 healthcare staff who restrained elderly patients - section I-VI	When patients are restrained After finishing the period of the observation rounds When patients are restrained	Section I: 19 items with Likert-type responses, scores range from 19-70 -The higher the number, the stronger the likelihood of physical restraint use: '19'=the least favorable attitude toward restraints '70'=the most favorable attitude Section II, VI: open-ended questions Section III, IV, V: frequency, percentage
3. The Administrative Questionnaire	Survey tool	Policies/standards of practice/ special guidelines related to physical restraint use	1 Director of Nursing, 3 Nurse Supervisors, 9 Head Nurses	Any time	Open-ended questions
4. The Chula Mental Test	Interview	13 items	429 elderly patients on nine wards	The beginning of observation	The lower the score, the greater is the degree of cognitive impairment. The cut-off score is less than 15 for cognitive impairment. The range of score is 0-19.

Table 3 Sample-Instrument Description

Sample	Instrument
Administrators	Administrative Questionnaire
Healthcare staff, and Family members	Physical Restraint Use Questionnaire
Elderly patients	Physical Restraint Use Observation Tool Chula mental test

Research Assistant Training

One research assistant, a registered nurse, was trained by the investigator to use the Physical Restraint Use Observation Tool. The investigator explained the definition of terms, the inclusion criteria, and how to use each instrument. To assure the research assistant's understanding, he was allowed to ask any questions until the investigator was confident. The inter-rater reliability between the investigator and the researcher assistant were examined with 10 elderly patients. Instrument reliability was established at 100% agreement for restraint use.

Protection of Human Subjects

Before starting the study, the study plan for protection of human subjects was submitted to the Songklanagarind Hospital Institutional Review Board (IRB) for approval. Potential participants were identified in the purpose of the study and were voluntarily consent to participate. All data were kept anonymous through the use of identification numbers. Confidentiality and freedom to withdraw from the study at any time were assured.

Data Collection

The permission letter from the Dean of the Faculty of Graduate Studies, Mahidol University was submitted to the Director of Songklanakarin Hospital. Steps and methods of collecting data included:

1. After approval of the study by the Songklanagarind Hospital Institutional Review Board (IRB), the investigator contacted the Director of Nursing, three Nurse Supervisors, and nine Head Nurses by introducing herself, describing objectives of the research, and asking for voluntary participation. The Administrative Questionnaire

was handed in to them, and after they completed the questionnaire, it was returned to the investigator within two weeks.

2. One trained research assistant, a registered nurse experienced in taking care of restrained elderly patients, was trained to use the Physical Restraint Use Observation Tool before the observation time period. Investigator and her assistant observed all elderly patients on nine wards using a Physical Restraint Use Observation Tool twice a day, once each between 10:00am and 2:00pm of day shift and between 6:00pm and 10:00 pm of evening shift, everyday until discharge. They also assessed all elderly patients' cognitive status using the Chula Mental Test at the beginning of observation and recorded on the Physical Restraint Use Observation Tool. Observation was about 30-60 minutes per ward.

3. For those patients found to be restrained, the primary nurse was asked to give the rationale, which was recorded on the Physical Restraint Use Observation Tool and to answer the PRUQ. Family members were also asked to complete the PRUQ.

4. The healthcare staff on nine wards were asked to complete the Physical Restraint Use Questionnaire after finishing the observation procedure. Consent procedures and protection of human subjects were followed. Questionnaires were collected by the investigator within two weeks.

Data Analysis

Data analysis is presented according to the research questions of this study.

Question 1: What are the prevalence, frequency, type, and rationale of PRU for Thai hospitalized elderly patients?

The prevalence of PRU was calculated as a ratio. The frequency, type and rationale of PRU were examined using frequency and percentage.

Question 2: Is there a difference between patient characteristics and PRU by healthcare staff for Thai hospitalized elderly patients?

The difference was examined using chi-square and independent t-test.

Question 3: Is there a relationship among organizational environmental factors and healthcare staff characteristics and attitudes toward PRU for Thai hospitalized elderly patients?

The relationships were examined using Pearson's correlation and one-way ANOVAs.

Question 4: Do healthcare staff and family members have similar/different attitudes toward PRU for Thai hospitalized elderly patients?

The difference was determined using independent t-test.

CHAPTER IV
RESULTS

Results are presented according to the research questions of this study. The demographic characteristics of the samples are described first, followed by prevalence, frequency, type and rationale of PRU, factors related to PRU and attitudes toward PRU, attitudes toward PRU of healthcare staff and family members, and additional findings, respectively.

Demographic Characteristics of the Samples

1. Demographic Characteristics of the Healthcare Staff Working in Nine Wards. The Physical Restraint Use Questionnaire was sent to a total of 387 healthcare staff working in nine wards and was returned by 310, giving a response rate of 80.1%. Mean age was 31.7 years (SD = 7.1) and range in age from 20 to 51. Most of the healthcare staff (95.8%, n = 297) were women, and mean length of clinical experiences was 9 years (SD = 7.4) ranging from 1 to 26. Among healthcare staff participating in the study, 53.9% (n = 174) were registered nurses, 15.2% (n = 49) were practical nurses and 26.9% (n = 87) were nurse aids. Most healthcare staff (52.9%, n = 164) had bachelor's degree, 28.1% (n = 87) had a diploma; 14.5% (n = 45) were graduates from high school, and 4.5% (n = 14) had a master's degree. Most (92%) had never received special training, education, seminar, conference, or information about physical restraint use (PRU). None had instruction in PRU as part of their formal education. Most (88.4%, n = 274) never received any special training, education, seminar, conference, or information in geriatrics. Demographic characteristics of the healthcare staff working in nine wards are presented in Table 4.1.

Table 4.1 Demographic Characteristics of the Healthcare Staff Working in Nine Wards (N = 310)

Variables	Min-Max	Mean	SD	n	(%)
Age (years)	20-51	31.7	7.1		
Gender					
Female				297	95.8
Male				13	4.2
Years of clinical experience	1-26	9	7.4		
Position					
Registered Nurses				174	53.9
Practical Nurses				49	15.2
Nurse Aids				87	26.9
Education					
Master degree				14	4.5
Bachelor degree				164	52.9
Diploma				87	28.1
High school				45	14.5
Specific education about physical restraint use					
Yes				25	8.1
No				285	91.9
Specific gerontologic education					
Yes				36	11.6
No				274	88.4

The largest proportion of the healthcare staff working in nine wards were from the Male Medical Ward 2 (16.7%, n = 54). The proportion of the healthcare staff in each ward are summarized in Table 4.2

Table 4.2 Proportion of the Healthcare Staff (N = 310)

Wards	**n**	**(%)**
Male Medical Ward 2	54	16.7
Female Medical Ward	40	12.4
Male Medical Ward 1	39	12.1
Neuro-Surgical Ward	39	12.1
Female Surgical Ward	36	11.1
Male Surgical Ward 1	34	10.5
Male Surgical Ward 2	32	9.9
Female Orthopedic Ward	23	7.1
Male Orthopedic Ward	22	6.8

2. Demographic Characteristics of Elderly Patients who were Observed in Nine Wards. Four hundred and twenty nine elderly patients were observed in nine wards ranging in age from 60 to 98, with a mean of 71.1 years (SD = 7.6). Majority were men (58.7%, n = 252) and intact cognitive status (88.8%, n = 381). The length of stay ranged from 2 to 60 days, with a mean of 8.8 days (SD = 7.9). Patients were admitted most often to the Female Surgical Ward (18.6%, n = 80), followed by Male Surgical Ward 2 (17.5%, n = 75), Female Medical Ward (15.2%, n = 65), Male Surgical Ward 1 (13.1%, n = 56), Male Medical Ward 1 (12.6%, n = 54), Male Orthopedic Ward (8.9%, n = 38), Male Medical Ward 2 (5.4%, n = 23), Female Orthopedic Ward (4.9%, n = 21), and Neuro-Surgical Ward (4.0%, n = 17). Demographic characteristics are summarized in Table 4.3.

Table 4.3 Demographic Characteristics of the Elderly Patients Observed in Nine Wards (N = 429)

Variables	**Min-Max**	**Mean**	**SD**	**n**	**(%)**
Age (years)	60-98	71.1	7.6		
60 – 74				293	68.3
≥ 75				136	31.7
Gender					
Female				177	41.3
Male				252	58.7
Cognitive status					
Intact				381	88.8
Impairment				48	11.2

Table 4.3 Demographic Characteristics of the Elderly Patients who were Observed in Nine Wards (N = 429) (Continued)

Variables	Min-Max	Mean	SD	n	(%)
Number of days hospitalized	2-60	8.8	7.9		
Wards					
Female Surgical Ward				80	18.6
Male Surgical Ward 2				75	17.5
Female Medical Ward				65	15.2
Male Surgical Ward 1				56	13.1
Male Medical Ward 1				54	12.6
Male Orthopedic Ward				38	8.9
Male Medical Ward 2				23	5.4
Female Orthopedic Ward				21	4.9
Neuro-Surgical Ward				17	4.0

3. Demographic Characteristics of Restrained Elderly Patients. A total of 27 restrained elderly patients ranged in age from 62 to 90 years, with a mean of 76.1 years (SD = 7.3). The length of stay ranged from 2 to 60 days, with a mean of 18.4 days (SD = 13.1). Most of the restrained elderly patients were men (55.6%, n = 15) and most had cognitive impairment (88.9%, n = 24). The demographic characteristics of the restrained elderly patients were summarized in Table 4.4.

Table 4.4 Demographic Characteristics of the Restrained Elderly Patients (N = 27)

Variables	Min-Max	Mean	SD	n	(%)
Age (years)	62-90	76.1	7.3		
60 – 74				13	48.1
≥ 75				14	51.9
Gender					
Female				12	44.4
Male				15	55.6
Cognitive status					
Intact				3	11.1
Impairment				24	88.9
Number of days hospitalized	2-60	18.4	13.1		

4. Demographic Characteristics of Family Members of Restrained Elderly Patients. A total of 27 family members of restrained elderly patients ranged in age from 23 to 74 years, with a mean of 45.8 years (SD = 12.5). Most were females (66.7%, n = 18) with an earned bachelor's degree (44.4%, n = 12). Nearly all family members (92.6%, n = 25) were children, the rest were wives. Demographic characteristics of family members of restrained elderly patients are shown in Table 4.5.

Table 4.5 Demographic Characteristics of the Family Members of the Restrained Elderly Patients (N = 27)

Variables	Min-Max	Mean	SD	n	(%)
Age	23-74	45.8	12.5		
Gender					
Female				18	66.7
Male				9	33.3
Education					
Master degree				1	3.7
Bachelor degree				12	44.4
Diploma				3	11.1
High School				6	22.2
Elementary				5	18.5
Relation to patients					
Children				25	92.6
Wife				2	7.4

5. Demographic Characteristics of Healthcare Staff Restraining Elderly Patients. A total of 27 healthcare staff restrained patients and most were women (96.3%, n = 26). Mean age was 37.8 years (SD = 6.4, range 26-47), and mean length of clinical experience was 16.4 years (SD = 7.4, range 3-27). Most had a bachelor's degree (85.2%, n = 23), Three (11.1%) had a master's degree, while one (3.7%) had a diploma. Eighty five percent (n = 23) never received special training, education, seminar, conference, or information about physical restraint use (PRU). None had any formal education in PRU. Over 80% (n = 22) of them had no special training, education, seminar, conference, or information in geriatrics. Demographic characteristics of the healthcare staff restraining patients are summarized in Table 4.6.

Table 4.6 Demographic Characteristics of Healthcare Staff Restraining Patients (N = 27)

Variables	Min-Max	Mean	SD	n	(%)
Age (years)	26-47	37.8	6.4		
Gender					
Female				26	96.3
Male				1	3.7
Years of clinical experience	3-27	16.4	7.4		
Education					
Master degree				3	11.1
Bachelor degree				23	85.2
Diploma				1	3.7
Specific education about physical restraint use					
Yes				4	14.8
No				23	85.2
Specific gerontologic education					
Yes				5	18.5
No				22	81.5

Research Question 1: What are the prevalence, frequency, type, and rationale of PRU for Thai hospitalized elderly patients?

Prevalence, Frequency, Type, and Rationale of PRU.

The prevalence of PRU (including side rails) was 65.7% (n = 281). The prevalence was 59.4% if side rails were used only, whereas 6.3% (n = 27) was both the use of side rails and additional physical restraint devices. One hundred percent of the restrained patients have been found restrained at least once and had side rails, in addition to 85.2% with additional restraining devices in order to allow the safe use of medical devices (endotracheal tube, nasogastric tube, oxygen canula, etc.). Three restrained patients had 3 types of restraints (wrist restraint, vest restraint, ankle restraint) applied in a 24-hour period. Preventing a fall was the only reason stated for the use of side rails as a physical restraint. The patterns of physical restraint use are summarized in Table 4.7.

Table 4.7 Patterns of Physical Restraint Use (N = 27)

Variables	n	(%)
Site of restraint application		
Bilateral wrist	23	85.2
Four extremities	1	3.7
Four extremities and chest	3	11.1
Bilateral side rails up	27	100
Frequency		
Once	22	81.5
Twice	5	18.5
Rationale of PRU (except side rails)		
Protecting medical devices	27	100
Rationale of side rails up		
Preventing falls	27	100

Research Question 2: Is there a difference between patient characteristics and PRU by healthcare staff for Thai hospitalized elderly patients?

Patient Characteristics and PRU

Age and cognitive status were found to differ statistically for restrained and unrestrained elderly patients ($t = 3.615$, $p < .001$, $\chi^2 = 166.815$, $p < .001$, respectively), gender was not statistically significant ($\chi^2 = .021$, $p > .05$). These differences are summarized in Table 4.8 and Table 4.9.

Table 4.8 Comparison of Patient's Age (Year) by PRU (N = 429)

PRU	n	Mean	SD	t	p-value
Restrained	27	76.11	7.334	3.615	< .001
Unrestrained	402	70.72	7.514		

Table 4.9 Difference in PRU by Patient's Gender and Cognitive Status (N = 429)

Variables	PRU		χ^2	p-value
	Restrained	Unrestrained		
Gender				
Female	12	165	.021	.84^{ns}
Male	15	237		

Table 4.9 Difference in PRU by Patient's Gender and Cognitive Status (N = 429) (Continued)

Variables	PRU		χ^2	p-value
	Restrained	Unrestrained		
Cognitive status			166.815	< .001
Intact	3	378		
Impairment	24	24		

Research Question 3: Is there a relationship among organizational environmental factors, and healthcare staff characteristics and attitudes toward PRU for Thai hospitalized elderly patients?

1. Organizational Environment Factors

To assess the hospital policy or standards of practice, nursing administrators were asked about any special guidelines and/or policies and/or administrative manuals related to the use of physical restraints and standards of geriatric medical or nursing practice on their hospital, and they reported that the policy and standards were not established. Also, the incidence of physical restraint was not routinely reported.

2. Healthcare Staff Characteristics and Attitudes toward PRU

There was a statistically significant relationship between age and years of clinical experience, and attitudes toward PRU ($r = -.253$, $p < .01$, $r = -.248$, $p < .01$, respectively). These relationships are summarized in Table 4.10. These may be described that healthcare staff with older age and more years of clinical experience had less positive attitudes toward PRU.

Table 4.10 Relationship among Age, Years of Clinical Experience, and Attitude Scores Using Pearson's Correlation (N = 310)

	Age	Years of clinical experience	Attitude score
Age	1.000	.935**	-.253**
Years of clinical experience		1.000	-.248**
Attitude scores			1.000

** $p < .01$

Healthcare staff attitude toward PRU also differed significantly based on position and practice setting ($F = 11.063$, $p < .001$; $F = 4.7$, $p < .001$, respectively). No statistically significant differences were found among gender, education, specialized education in geriatrics, and training about PRU ($F = .212$, $p > .05$, $F = 2.628$, $p > .05$, $F = 3.088$, $p > .05$, $F = 2.004$, $p > .05$, respectively). These relationships are summarized in Table 4.11.

Table 4.11 Comparison of Attitudes toward PRU by Demographic Characteristics of Healthcare Staff Using ANOVA (N = 310)

Source of variation	SS	df	MS	F	p
Practice setting (ward)					
Between groups	758.842	8	94.855	4.7	p < .001
Within groups	6075.042	301	20.183		
Total	6833.884	309			
Gender					
Between groups	4.701	1	4.701	.212	p > .05
Within groups	6829.183	308	22.173		
Total	6833.884	309			
Education					
Between groups	171.657	3	57.219	2.628	p > .05
Within groups	6662.227	306	21.772		
Total	6833.884	309			
Position					
Between groups	459.408	2	229.704	11.063	p < .001
Within groups	6374.476	307	20.764		
Total	6833.884	309			
Receiving specialized education in geriatric					
Between groups	67.829	1	67.829	3.088	p > .05
Within groups	6766.055	308	21.968		
Total	6833.884	309			
Receiving training about PRU					
Between groups	44.187	1	44.187	2.004	p > .05
Within groups	6789.697	308	22.044		
Total	6833.884	309			

Note: Groups of variables are categorized as shown in Table 4.1.

Mean attitude scores toward PRU of healthcare staff is presented by practice setting and position. Mean attitude scores toward PRU of healthcare staff working at Neuro-Surgical Ward was the most (mean = 47.71, SD = 4.27), followed by Male Surgical Ward 2 (mean = 47.58, SD = 3.93), Male Medical Ward 2 (mean = 46.94, SD = 3.55), Female Surgical Ward (mean = 46.6, SD = 4.59), Male Medical Ward 1 (mean = 45.5, SD = 4.94), Male Surgical Ward 1 (mean = 45.39, SD = 4.62), Male Orthopedic Ward (mean = 43.71, SD = 3.55), Female Medical Ward (mean = 43.54, SD = 5.68), and Female Orthopedic Ward (mean = 43.36, SD = 4.7). Mean attitude scores toward PRU of nurse aids was the most (mean = 47.57, SD = 4.21), followed by registered nurses (mean = 45.47, SD = 4.35), and practical nurses (mean = 43.96, SD = 5.72). Mean attitude scores toward PRU of healthcare staff is summarized in Table 4.12.

Table 4.12 Mean Attitude Scores toward PRU of Healthcare Staff (N = 310)

Variables	n	Mean	SD
Practice setting			
Neuro-Surgical Ward	38	47.71	4.27
Male Surgical Ward 2	31	47.58	3.93
Male Medical Ward 2	53	46.94	3.55
Female Surgical Ward	35	46.60	4.59
Male Medical Ward 1	38	45.50	4.94
Male Surgical Ward 1	33	45.39	4.62
Male Orthopedic Ward	21	43.71	3.55
Female Medical Ward	39	43.54	5.68
Female Orthopedic Ward	22	43.36	4.7
Position			
Nurse aid	87	47.57	4.21
Registered nurse	174	45.47	4.35
Practical nurse	49	43.96	5.72

A post hoc analysis was further conducted. Comparison of Mean Difference in Attitudes toward PRU by Healthcare Staff's Practice Setting using tukey's test is summarized in Table 4.13. Healthcare staff working at Female Medical Ward (X1) had less positive attitudes toward PRU than those working at Male Medical Ward 2 (X2) and Male Surgical Ward 2 (X4). Healthcare staff working at Neuro-Surgical Ward (X7) had more positive attitudes toward PRU than those working at Female

Medical Ward (X1), Male Orthopedic Ward (X8), and Female Orthopedic Ward (X9). Healthcare staff working at Female Orthopedic Ward (X9) had less positive attitudes

Table 4.13 Comparison of Mean Difference in Attitude toward PRU by Healthcare Staff's Practice Setting (Ward) Using Tukey's Test (N = 310)

Staff's Practice Setting	Mean Difference								
	X1	X2	X3	X4	X5	X6	X7	X8	X9
Female Medical Ward (X1)	1.00	-3.40*	-1.96	-4.04**	-3.06	-1.86	-4.17**	-.18	.17
Male Medical Ward 2 (X2)		1.00	1.44	-.64	-.34	1.55	-.77	3.23	3.58*
Male Medical Ward 1 (X3)			1.00	-2.08	-1.10	.11	-2.21	1.79	2.14
Male Surgical Ward 2 (X4)				1.00	.98	2.19	-.13	3.87	4.22*
Female Surgical Ward (X5)					1.00	1.21	-1.11	2.89	3.24
Male Surgical Ward 1 (X6)						1.00	-2.32	1.68	2.03
Neuro-Surgical Ward (X7)							1.00	4.00*	4.35*
Male Orthopedic Ward (X8)								1.00	.35
Female Orthopedic Ward (X9)									1.00

Note: The practice settings (ward) in the first column were referenced: The minus sign (-) indicates that the mean score of attitudes toward PRU of the setting in the first column is less than that in the compared setting.

toward PRU than those working at Male Medical Ward 2 (X2) and Male Surgical Ward 2 (X4).

Comparison of Mean Difference in Attitudes toward PRU by Healthcare Staff's Position using Tukey's test is summarized in Table 4.14. Nurse aids had more positive attitudes toward PRU than registered nurses and practical nurses, whereas no differences were found between registered nurses and practical nurses.

Table 4.14 Comparison of Mean Difference in Attitudes toward PRU by Healthcare Staff's Position Using Tukey's Test (N = 310)

Variable	Mean Difference		
	X1	X2	X3
Registered nurse (X1)	1.00	1.51	-2.11***
Practical nurse (X2)		1.00	-3.62***
Nurse aid (X3)			1.00

3. Healthcare Staff Attitudes toward PRU

For responses to the Physical Restraint Use Questionnaire, attitude scores ranged from 24 to 56 (a total score ranges from 19-70). The higher the number, the stronger is the attitude and likelihood of physical restraint use. The lowest possible score, "19", indicates the least favorable attitudes toward physical restraint use (least prone to use physical restraint); the highest possible score, "70", reflects the most favorable attitude (most prone to use physical restraint). The mean score of healthcare staff toward PRU application was 45.8 (SD = 4.7), indicating that the healthcare staff had more positive attitudes toward PRU.

Answers to the attitude items showed that, in general, healthcare staff believed that restraints are undesirable, but necessary (84.5%, n = 262); when applying restraints, healthcare staff understood patient freedom, but wished to protect the patient (56.8%, n = 176). Healthcare staff believed that some restrained patients had to be restrained (55.5%, n = 172). In addition, they believed that restraints decreased pulling out therapeutic devices (90.3%, n = 280), decreased the risk of falling out of bed (90%, n = 279), increased patients' sensory stimulation (78.7%, n = 244), decreased injury to restrained patients (71.3%, n = 221), increased confusion (65.8%, n = 204), and decreased nursing care time (62.6%, n = 194).

Item agreement for attitudes toward PRU uses a 4-scale format. However, the 'strongly agree' and 'agree' scores were summed to be the 'agree' category, and the 'strongly disagree' and 'disagree' were summed to be the 'disagree' category. Most healthcare staff (81.6%) agreed that restraint is a means for assuring safe care and 73% agreed that bed rails are physical restraints. Around sixty three percent agreed that restraining a patient is an insult to personal rights. Furthermore, more than half of the healthcare staff (57.1%) agreed that 'it is important to apply restraints to assure legal protection for myself and the hospital when a fall has occurred'. Most (87.1%) disagreed with the statement that 'patients should not be restrained without a physician's order'. Over 60% disagreed with the statement that 'when a patient is restrained he/she feels humiliated' (62.9%) and 'patients are being restrained due to insufficient staff' (65.8%).

Most healthcare staff (78.4%) agreed that family members should participate in decisions to restrain a relative, 95.8% agreed that the presence of a family member is an alternative to restraint, and 91.6% agreed that there are good alternatives to restraint and that these should be tried first, before any decision to restrain. The attitudes toward PRU are summarized in Table 4.15.

Table 4.15 Healthcare Staff Attitudes toward PRU (N=310)

Questions	**n**	**(%)**
In general, restraints:		
1. are undesirable but necessary	262	84.5
2. increase patients' sensory stimulation	244	78.7
3. increase confusion	204	65.8
4. decrease the risk of falling out of bed	279	90
5. decrease injury to restrained patients	221	71.3
6. decrease pulling out therapeutic devices	280	90.3
7. decrease nursing care time	194	62.6
8. some patients need to be restrained	172	55.5
9. Understand patient freedom but wish to protect them	176	56.8

Questions	**Agree (%)**	**Disagree (%)**
10. Bed rails are physical restraints	72.9	27.1
11. Restraint for assuring safe care	81.6	18.4
12. Restraint for assuring legal protection	57.1	42.9
13. Restraint without a physician's order	12.9	87.1
14. Restraint insults personal rights	63.2	36.8
15. Patient feels humiliated	37.1	62.9
16. Restrained due to insufficient staff	34.2	65.8

Table 4.15 Healthcare Staff Attitudes toward PRU (N=310) (Continued)

Questions	Agree (%)	Disagree (%)
17. Family participation in decisions to restrain	78.4	21.6
18. Family is an alternative to restraint	95.8	4.2
19. Alternatives should be tried first	91.6	8.4

Research Question 4: Do healthcare staff and family members have similar/different attitudes toward PRU for Thai hospitalized elderly patients?

Attitudes toward PRU

The mean score of attitudes toward PRU of healthcare staff restraining elderly patients and family members of restrained elderly patients was 46.9 (SD = 3.4) and 44.6 (SD = 3.9), respectively. There was a statistically significant difference in attitudes toward PRU between family members and healthcare staff ($t = -2.27$, $p < .05$), as presented in Table 4.16. The mean score on attitudes toward PRU of family members of restrained elderly patients was more favorable than that of healthcare staff who restrained elderly patients.

Table 4.16 Comparing Attitudes toward PRU between Healthcare Staff Restraining Elderly Patients and Family Members of Restrained Elderly Patients (N=27)

Attitudes toward PRU	Mean	SD	Range	t-test	p-value
Healthcare staff restraining elderly patients	44.6	3.9	35-54	-2.27	.027*
Family members of restrained elderly patients	46.9	3.4	40-53		

Comparison of Attitude Items toward PRU between Healthcare Staff Restraining Elderly Patients and Family Members of Restrained Elderly Patients

Generally, both healthcare staffs and family members believed that restraints were undesirable but necessary; some patients who are restrained must be restrained, and that physical restraint violated a patient freedom but was needed for protection from harm. There was similarity between family members and healthcare staff on the impact of PRU on elderly patients. All healthcare staff (100%) and nearly all family

members (96.3%) believed that restraints decreased pulling out therapeutic devices. Nearly all healthcare staff believed that restraints decreased the risk of falling out of bed (96.3%) and increased sensory stimulation (92.6%). Most family members (81.5%) believed that restraints decreased the risk of falling and 70.4% believed that restraints increased patients' sensory stimulation. More than half of the healthcare staff and family members believed that restraints increased confusion and decreased nursing care time. Most family members (81.5%) believed that restraints decreased injury to restrained patients, whereas less than half of the healthcare staff believed that restraints decreased injury to restrained patients (48.1%).

Most family members (85.2%) agreed that bed rails are physical restraints, yet only 59.3% of healthcare staff agreed. All family members (100%) agreed that restraint is a means for assuring safe care, although only 63% of healthcare staff agreed with this statement. There was significant disagreement between healthcare staff and family members on three important items. More than half of the healthcare staff (63%) denied applying restraints to assure legal protection for self and the hospital when a fall has occurred; most healthcare staff (92.6%) perceived that patients can be restrained without a physician's order, and many (77.8%) perceived that restraining a patient is an insult to personal rights. However, more than half of the family members (59.2%) perceived that healthcare staff apply restraints to assure legal protection for self and the hospital when a fall has occurred; many (74%) perceived that patients should not be restrained without a physician's order; and many (74.1%) denied that a restraint was an insult to personal rights. Both groups disagreed with the statement that 'when a patient is restrained he/she feels humiliated' and 'patients are being restrained due to insufficient staff'. Both groups agreed that family members should participate in decisions to restrain a relative; the presence of a family member is an alternative to restraint; and there are good alternatives to restraint and these should be tried first, before any decision to restrain. The attitudes toward PRU by healthcare staff and family members are shown in Table 4.17.

Table 4.17 Attitudes toward PRU by Healthcare Staff Restraining Elderly Patients and Family Members of Restrained Elderly Patients (N = 27)

Variables	Healthcare staff		Family member	
	n	(%)	n	(%)
In general, restraints:				
1. are undesirable but necessary	24	88.9	22	74.1
2. increase patients' sensory stimulation	25	92.6	19	70.4
3. increase confusion	21	77.8	19	70.4
4. decrease the risk of falling out of bed	26	96.3	22	81.5
5. decrease injury to restrained patients	13	48.1	22	81.5
6. decrease pulling out therapeutic devices	27	100	26	96.3
7. decrease nursing care time	14	51.9	18	66.7
8. some patients need to be restrained	14	51.9	19	70.4
9. Understand patient freedom but wish to protect them	17	63	17	63

Variables	Healthcare staff		Family member	
	Agree (%)	Disagree (%)	Agree (%)	Disagree (%)
10. Bed rails are physical restraints	59.3	40.7	85.2	14.8
11. Restraint for assuring safe care	63	37	100	-
12. Restraint for assuring legal protection	37	63	59.2	40.8
13. Restraint without a physician's order	7.4	92.6	74	26
14. Restraint insults personal rights	77.8	22.2	25.9	74.1
15. Patient feels humiliated	44.4	55.6	3.7	96.3
16. Restrained due to insufficient staff	29.6	70.4	33.4	66.6
17. Family participation in decisions to restrain	81.5	18.5	85.2	14.8
18. Family is an alternative to restraint	96.3	3.7	88.9	11.1
19. Alternatives should be tried first	92.6	7.4	74.1	25.9

Additional Findings from the Physical Restraint Use Questionnaire

1. Perceptions of Administrative Support and Collaboration Regarding Restraint Decisions

Only 62.9% of the 310 healthcare staff surveyed believed that they would receive administrative support if a patient who was not restrained fell. About intra- and interdisciplinary collaboration, they reported that the decision to restrain patients was not an independent one. Only 14 (4.5%) reported that they made the decision by themselve to restrain patients, while 192 (61.9%) said they consulted with a peer, 5 (1.6%) with a physician, and 99 (32%) with the head nurse or team leader.

The data on administrative support and collaboration regarding restraint decisions are presented in Table 4.18.

Table 4.18 Administrative Support and Collaboration Regarding Restraint Decisions (N = 310)

Variables	n	(%)
Administrative support		
Yes	195	62.9
No	115	37.1
Collaboration		
Alone	14	4.5
With a peer	192	61.9
With a team leader	99	32
With a physician	5	1.6

2. Rationale of PRU of Healthcare Staff

Rank-ordered reasons of PRU by healthcare staff were presented in Table 4.19. The healthcare staff rated "protecting medical device" as the most important reason (rank-ordered=1) for using physical restraints and "fear of liability if falling occurred (rank-ordered=5)" as the least important reason.

Table 4.19 Rationale of PRU of Healthcare Staff (N = 310)

Variables	Rank-ordered	n	(%)
Protecting medical device	1	160	51.6
Preventing fall	2	127	41
Controlling agitated behavior	3	128	41.3
Preventing harm to patient or other	4	128	41.3
Fear of liability if falling is occurred	5	244	78.7

3. Nursing Interventions as Alternatives to Restrain Patients

The healthcare staff suggested many alternative nursing interventions to restrain patients and these were categorized and tabulated. These qualitative data are summarized in Table 4.20. The most frequent alternative offered was to "encourage family participation in care".

Table 4.20 Healthcare Staff Alternatives to Restraints (N = 310)

Alternative Interventions	Frequency (%)	Percent
Encourage family participation in care	258	56.2
Talk with and orient restrained patients	65	14.1
Maintain close observation/use volunteers monitoring patients	40	8.7
Raise side rails	28	6.1
Inform a physician to give medicine	25	5.4
Move patients close to nurses' station	16	3.5
Hang a bell at the bed	13	2.8
Place patients on the floor	10	2.2
Search causes of confusion	2	.4
Provide care by other patients	1	.2
Provide care by special nurse	1	.2

4. Consequences of PRU

The healthcare staff suggested many negative consequences of physical restraint use. Qualitative data are summarized in Table 4.21. The most frequent negative consequence noted was "skin abrasion".

Table 4.21 Consequences of PRU (N = 310)

Consequences	Frequency	Percent (%)
To patient		
Skin abrasion	43	27.9
Trying to remove restraints	22	14.3
Confusion	17	11.0
Pulling out medical devices	13	8.4
Aggression	12	7.8
Climbing out of bed	6	3.9
Anxiety	5	3.2
Falling	5	3.2
Discomfort	3	1.9
Poor sleep	2	1.3
Pressure sore	2	1.3
To family members		
Upset	23	14.9
To healthcare staff		
Increased care time	1	.6

CHAPTER V
DISCUSSION

Discussion of the results of this study is presented according to the research questions.

Prevalence, Frequency, Type, and Rationale of PRU

The prevalence of PRU (including side rails) was 65.7% (n = 281). The prevalence was 59.4% if side rails were used only, whereas 6.3% (n = 27) was both the use of side rails and additional physical restraint devices. The most frequently types of PRU were bilateral wrist restraint (85.2%). Interviews with healthcare staff who restrained patients made it clear that most restraint applications were to prevent displacement of medical devices (endotracheal tube, nasogastric tube, oxygen canula, intravenous lines, etc.).

This finding is consistent with the finding of Minnick, Mion, Leipzig, Lamb, and Palmer (1998) in which the predominant reason for the use of physical restraints was to prevent patients from disrupting treatments. Furthermore, Happ (2000) conducted a study on the nurse's role of preventing treatment interference in critically ill patients. The decision to apply physical restraints is often based on the belief that the patient, if unrestrained, will intentionally or inadvertently remove intravenous lines, tubes, drains, or life-sustaining equipment (Stratmann et al, 1997; Thomas, Redfern, & John, 1995; Tilley & Chambers, 1999). Nearly 100% of healthcare staff in this study agreed with the statement that 'In general, restraints decrease pulling out therapeutic devices'. Maintaining technological devices is almost exclusively a nursing responsibility and nurses are thus the most protective of those devices for which accidental removal is considered life threatening.

Maintaining medical devices requires cooperation from patients. An older patient may forget the necessity of their use and remove them forcefully or perceive them as uncomfortable. Several studies have found that patients who self-extubate do

so despite their being restrained. Nevertheless, reintubation is not required in 50-89% of patients with unplanned extubation (Barr, 1996). The unrestrained patient may remove medical devices just as easily as the restrained patient. Interviews with the healthcare staff found that the rationale of restraint application for all 27 restrained patients was to keep the patient from displacing medical devices; in addition, 'pulling out medical devices' was also one of the consequences of PRU.

From observation, healthcare staff use side rail as a routine nursing intervention to prevent fall. When the patients were assessed having risk to fall, side rails had to raise up. Both healthcare staff and families did not view side rails as a restraint. Therefore, if mention only additional restraint devices application (excluding side rails), the prevalence of PRU was low in this study. Healthcare staff restrained mainly to protect medical devices, to control agitated behavior, healthcare staff used family participation at the bedside instead of PRU. Not surprisingly, healthcare staff suggested as a frequent alternative to restraining patients the use of "family participation in care". In addition, healthcare staff agreed nearly 100% with the statement that 'the presence of a family member is an alternative to restraint'. In clinical practice, however, family members may desire involvement in the patient's care, but fear taking responsibility. Few family members can provide around-the-clock support.

The most frequently used restraints in bed are bed rails (85% to 98%) (Hamers, Gulpers & Strik, 2004; Liukkonen & Laitinen, 1994). Lever and colleagues (1994) found that double bed rails were the most commonly used restraint with acute (54%) and chronic (48%) patients. This study had similar results with a prevalence of raised full-length side rails are 65.7%. Preventing falls was the most common reason for the use of side rails. Nearly 100% agreed with the statement that 'In general, restraints decrease the risk of falling out of bed'. Those findings are in line with Helmuth's study (1995) which demonstrated that preventing falls was a strong indication for the use of restraints. Healthcare staff in this study used restraints as an important nursing intervention for ensuring the safety of older patients.

Side rails often are based on the belief that they minimize falls from hospital beds, but studies have shown that falls occur from bed despite the use of side rails (Evans, Hodgkinson, Lambert, Frengley, & Mion, 1998; Ginter & Mion, 1992; Wood

& Kowanko, 1998). This often occurs as the patient struggles to get out of the restraint or climbs over the bed rails and falls from a higher bed height (Hanger, Ball, & Wood, 1999). Healthcare staff viewed falling as a consequence of PRU. Shorr and colleagues (2002) determined the relationship between physical restraints and falls in acute hospital settings and reported that patients with orders for restraints were more likely to fall than patients without orders for restraints. The nature of side rails is less clear and has been viewed both as a restraint and as a safety device.

Difference between Patient Characteristics and PRU by Healthcare Staff

A statistically significant difference was found between age of healthcare staff and PRU by healthcare staff. This finding is similar to four studies in a systematic review (Evans, Wood, Lambert & FitzGerald, 2002) showing that persons aged 60 years or older were more likely to be restrained during a hospital stay. Risk for physical restraint is three to four times greater if a patient is older (Mion & Strumpf, 1994; Macpherson et al., 1990; Mion et al., 1989). On the contrary, Gallinagh, Slevin, and McCormack's study (2002) showed that no significant differences in age occurred between restrained and non-restrained patients. This might be explained by increases in chronic illness and disability with age. Elderly Thais with health problems are admitted to hospitals. Acute confusional state is a common problem with a higher incidence among hospitalized elderly patients (Eden & Foreman, 1996; Francis, Martin, & Kapoor, 1990). Therefore, hospitalized older adults are at risk for use of physical restraints, especially when presenting with altered mental status, fall risk, poor mobility, and the complications of chronic illnesses.

No significant relationship existed between gender and PRU. This finding is consistent with Gallinagh, Slevin, and McCormack's study (2002) of restrained and unrestrained males and females. Both male and female elderly patients appear to have equal risk for use of physical restraints when admitted to hospital.

There was a statistically significant relationship between cognitive status and PRU, similar to Bredthauer and colleagues (2005) who demonstrated that 30% of elderly patients were physically restrained, with the highest incidence (48%) among those with severe cognitive impairments (diagnosis of dementia and/or delirium). This

also agree with four studies in a systematic review (Evans, Wood, Lambert, & FitzGerald, 2002) where persons with cognitive impairment were more likely to be restrained during a hospital stay. Risk for physical restraints is three to four times greater if a patient has cognitive impairment (Macpherson et al., 1990; Mion & Strumpf, 1994; Mion et al., 1989). Furthermore, cognitive impairment is consistently cited as the most frequent predictor of restraint use in hospitals (Burton et al., 1992; Strumpf, Evans, Baumgarten & Maislin, 1999). Patients with cognitive impairment are generally at risk for accidents, are less able to comply with medical treatments and regimens, and sometimes behave aggressively or disruptively.

Relationships among Organizational Environment Factors and Healthcare Staff Characteristics and Attitudes Toward PRU

1. Organizational Environment Factors

Responses to the open-ended Administrative Questionnaire item concerning hospital policies or standards of practice on restraint use revealed no hospital policy or standards of practice directly to restraint use. Furthermore, the Hospital Accreditation (HA) standard for Thailand states that patients' rights for privacy, human dignity, personal values and beliefs are respected, but healthcare staff believe that physical restraints are nevertheless needed to safeguard patients from injury. Obviously, fear of lawsuits subsequent to patient falls remains a pivotal rationale for nurses' application of restraints.

In the United States, restraint in nursing homes is governed by the Omnibus Budget Reconciliation Act of 1987 (OBRA); it became effective in 1990. Nursing home residents have the right to be free from physical or chemical restraints that are not required to treat specific medical symptoms (Janelli, kanski & Neary, 1994). Since OBRA was introduced, it has had a major influence on restraint reduction. The restraint rate nationally declined from 41% pre-OBRA to 21% by early 1995 (Cohen, et al., 1996). Several studies after 1995 described achieving much lower rates of restraint use. The study of Stratmann and colleagues (1997) found that the frequency of restraint use decreased by almost half, from 25% to 14%. In addition, falls did not

increase, but those falling were less likely to be restrained. Therefore the formal hospital policy have influence on healthcare staffs' attitude toward PRU. In an effort to enhance patient safety and to minimize PRU, the hospital policy to restraint use is needed.

2. Healthcare Staff Characteristics and Attitudes toward PRU

A statistically significant relationship existed between age and years of clinical experience, and attitudes toward PRU. Healthcare staff attitudes toward PRU also differed statistically based on position and practice setting; no statistically significant differences existed among gender, education, specialized education in geriatrics, and training about PRU. Although this finding is similar to that of Thomas, Redfern and Reesa (1995), it differs from the findings of Myers, Nikoletti and Hill (2001) and Karlsson, Bucht, and Sandman (1998), who found no correlations between age, gender, receiving training about PRU, and years in elder care except practice setting and position. It is well known that elder care healthcare staff routinely use physical restraints on patients. Furthermore, it is of great interest to learn more about how staff attitudes affect the use of physical restraints in elder care. This study is in agreement with others (Hardin et al., 1994; Helmuth, 1995) showing that healthcare staff have more positive attitudes toward PRU.

Healthcare staff who are older and have many years of clinical experience tend to less use physical restraints as an important nursing intervention for ensuring safety than junior staff because they might know the consequences of PRU and try to use an alternative first before any decision to restrain, whereas junior staff might not have confident taken care of patient with aggression and having treatment interference without PRU. This may contribute to favorable attitudes about physical restraint use.

Differences in Attitudes toward PRU by Healthcare Staff and Family Members

A statistically significant difference occurred in attitudes toward PRU between family members of restrained elderly patients and healthcare staff who restrained elderly patients. The mean score of healthcare staff attitudes toward PRU was less favorable than that of family members. Family members tended to desire PRU more

than healthcare staff. Most family members (85.2%) agreed that bed rails are the same as physical restraints, yet only 59.3% of healthcare staff agreed. All family members (100%) agreed that restraint is a means for assuring safe care, although only 63% of healthcare staff agreed with this. More than half of the healthcare staff (63%) denied applying restraints to assure legal protection for myself and the hospital when a fall occurred, but more than half the family members (59.2%) perceived that it is important to apply restraints. Other studies about family perceptions had different results; in these, most families were upset and had strong emotional responses when seeing loved ones restrained (Elk & Ferchau, 2000). Many did not understand why restraints were used and did not know about their physical and psychological harms (Hardin et al., 1993; Kanski, et al., 1996). In this study family members viewed restraint as an expected standard for patient safety. Although they desired to be involved in patient care, they appeared fearful about taking responsibility for care, possibly because of communication skills or actual ability. This may contribute to family request or desire for physical restraint used (Martin, 2002). No study has compared attitudes toward PRU between healthcare staff and family members.

Study Limitation

The data in this study were recruited from only one hospital in Songkla and they may limit the generalization of the results. Moreover, it is possible that some samples may have responded to the questionnaire statements in a way that they believed would please the researcher, rather than one that reflected their actual practice.

CHAPTER VI
CONCLUSION

In this chapter, conclusions, implications to nursing, contributions of this study to nursing science, and recommendations on future research are provided.

Conclusions of the Study

It is well known that healthcare staff routinely use physical restraints in caring for elderly patients. Physical restraints have been used to maintain patient and others' safety; to prevent falls; to prevent removal of tubes, other invasive treatment devices, or monitoring devices; to manage agitation and aggression; to exercise behavioral control; and to prevent patients from wandering. Healthcare staff believe that physical restraints are needed and view them as an appropriate intervention, despite the lack of empirical evidence for the effectiveness of restraints in safeguarding patients from injury. Furthermore, in Thailand, the practice of physical restraint use (PRU) remains widespread and appears to be accepted as inevitable and perhaps unquestioned because of concerns about patient safety.

In order to develop an educational intervention suitable for practice in Thailand, this study was an exploration of physical restraint and its contributory factors for Thai hospitalized elderly patients. A proposed Conceptual Framework for PRU of Healthcare Staffs for this study was synthesized from the Theory of Reasoned Action (TRA) of Ajzen and Fishbein (1980), and from a conceptual model for the use of restraints proposed by Kayser-Jones (1992).

This study was a descriptive (cross-sectional) study utilizing structured questionnaires and direct observation. Nursing administrators were asked to answer the Administrative Questionnaire. Elderly patients in nine wards were observed using a Physical Restraint Use Observation Tool twice a day, once each between 10.00 am-2.00 pm and between 6.00 pm-10.00 pm (day and evening), everyday until discharge. Their cognitive status was assessed using the Chula Mental Test at the beginning of

observation. For those patients found to be restrained, the primary nurse was asked to give the rationale of PRU which was recorded on the Physical Restraint Use Observation Tool and to answer the PRUQ. Family members were also asked to complete the PRUQ.

The inter-rater reliability of the Physical Restraint Use Observation Tool between the investigator and the research assistant were examined with 10 elderly patients. Instrument reliability was established at 100% agreement regarding restraint use. The Physical Restraint Use Questionnaire (PRUQ) was translated into Thai and then back translated into English and verified for accuracy. Content validity was done with three experts by using a content validity index (CVI). The CVI of the PRUQ was .86. A pilot test was conducted in 20 subjects who fit the selection criteria of this study to assess understanding and assure reliability. The Cronbach alpha coefficient was .72.

The purposive samples consisted of six groups from nine wards to be observed: 1) 13 nursing administrators (one Director of Nursing, three Nurse Supervisors [one Nurse Supervisor monitored three wards], and nine Head Nurses); 2) 310 healthcare staff (registered nurses, practical nurses, and nurse aids); 3) 27 healthcare staff who restrained elderly patients; 4) 429 elderly patients aged 60 and older; 5) 27 restrained elderly patients; and 6) 27 family members of restrained elderly patients. These purposive samples were voluntarily consented to participate in this study. Nine wards in a teaching hospital in Songkhla were used for data collection 1) Female Medical Ward; 2) Male Medical Ward 1; 3) Male Medical Ward 2; 4) Female Surgical Ward; 5) Male Surgical Ward 1; 6) Male Surgical Ward 2; 7) Neuro-Surgical Ward; 8) Female Orthopedic Ward; and 9) Male Orthopedic Ward.

The prevalence of PRU for Thai hospitalized elderly patients was calculated as a ratio. Frequency was examined by using descriptive analysis of the mean and standard deviations. Restraint type and rationale for PRU were examined using frequencies and percentages. The difference between patient characteristics and PRU by healthcare staff were examined using independent t-test and chi-square. The relationships among organizational environmental factors, and healthcare staff characteristics attitudes toward PRU for Thai hospitalized elders, were examined using Pearson’s correlation and one-way ANOVAs. The difference in attitudes toward PRU

between healthcare staff and family members was determined using independent t-test. The findings from this study are as follows:

1. The prevalence of PRU (including side rails) was 65.7% (n = 281). The prevalence was 59.4% if side rails were used only, whereas 6.3% (n = 27) was both the use of side rails and additional physical restraint devices. One hundred percent of the restrained patients have been found restrained at least once and had side rails, in addition to 85.2% with additional restraining devices. The most frequently used types of PRU were bilateral wrist restraint. The rationale of restraint application was to keep the patient from displacing medical devices while preventing falls was the most common reason stated for the use of side rails as a physical restraint.

2. Elderly patients' age, length of hospital stay (LOS), and cognitive status were found to be statistically significant between restrained and unrestrained elderly patients ($t = 3.615$, $p < .001$, $t = 4.029$, $p < .001$, $\chi^2 = 166.815$, $p < .001$, respectively). Gender was not statistically significant ($\chi^2 = .021$, $p > .05$).

3. Hospital policy and standards of practice for PRU were not established. The incidence of physical restraint was not reported.

4. There were a statistically significant relationship between age and years of clinical experience, and attitudes toward PRU ($r = -.253$, $p < .01$, $r = -.248$, $p < .01$, respectively). Healthcare staff attitudes toward PRU were also found to be statistically significant based on position and practice setting ($F = 11.063$, $p < .001$, $F = 4.7$, $p < .001$, respectively). No statistically significant differences were found among gender, education, specialized education in geriatrics, and training about PRU ($F = .212$, $p > .05$, $F = 2.628$, $p > .05$, $F = 3.088$, $p > .05$, $F = 2.004$, $p > .05$, respectively).

5. There was a statistically significant difference in attitudes toward PRU between family members of restrained elderly patients and healthcare staff who restrained elderly patients ($t = -2.27$, $p < .05$). The mean score on attitudes toward PRU of family members ($M = 46.9$, $SD = 3.4$) was more favorable than that of healthcare staff ($M = 44.6$, $SD = 3.9$).

Implications for Nursing

Findings from this study have implications for clinical practice and education on physical restraint use.

Implications for Clinical Practices

1. Ninety percent of healthcare staff in this study never received special training, education, seminars, conferences, or information about physical restraint use (PRU). They still used physical restraints as an important nursing intervention for ensuring the safety of elderly patients and were uninformed on evidence based practice regarding PRU. Continuing education such as special training, education, seminar, conference, or other information about physical restraint use is important for healthcare staff in settings where physical restraints are likely to be used.

2. No hospital policy or standards of practice existed and incidence of physical restraint was not reported. In addition, only 62.9% of the healthcare staffs in this study believed that they would receive administrative support if a patient who was not restrained fell. Decision making on the use or avoidance of physical restraint was based on various external-internal factors. In an effort to enhance patient safety and to minimize PRU, a hospital policy on restraint use is needed.

Implications for Education on Physical Restraint

Healthcare staff in this study had no training in PRU. Therefore, physical restraint use should be added to the basic nursing curriculum and be a routine part of ongoing hospital education and professional development program.

Contribution of the Study to Nursing Science

This study did not test a specific Conceptual Framework for Physical Restraint Use; rather, it explored physical restraint use and its contributory factors for Thai hospitalized elderly patients, since only two evidence-based studies of restraint use have been conducted in Thailand. During the past decade, the Nursing Home Reform Act in the U.S., as well as guidelines and interventions targeting staff and health systems, have reduced the use of physical restraints and advanced restraint free care as a gold standard for practice. New knowledge, changed attitudes, and motivation of healthcare staff to modify practices related to use of restraints have markedly shifted

philosophy regarding restraint use in hospitals and nursing homes in the U.S. This is not yet the case in Thailand. Therefore, this study contributes new knowledge as follows:

This study is a first step toward gathering evidence-based data related to an unresolved and unquestioned practice in Thailand. It also provided new knowledge about clinical situations where restraints are common, and suggests that an appropriate educational intervention and guideline suitable for practice in Thailand. Needs to focus on fall prevention, managing interference with treatment, limiting side rails to one rail only, and minimizing restraint use.

Recommendations to Future Research

Further research in the area of restraint use is essential to ensure safe and human nursing care and to expand knowledge of individualized care.

1. The ample evidence that restraints are associated with serious negative outcomes mandates further exploration of methods to decrease or eliminate their use in all settings. Alternatives to physical restraint are nursing methods for reducing PRU. Although many restraint alternatives have been cited in the literature, few have been rigorously evaluated (Evans, Wood, Lambert, & FitzGerald, 2002). A number of studies have demonstrated that the use of physical restraints can be reduced by using a variety of alternatives; however, it has not yet been determined which alternatives are most effective for which patients (Sabangan, Katz, & Flicker, 2005). Finally, experimental research to test various alternative interventions to restraints such as family participation in care would be extremely beneficial.

2. The nature of side rails is less clear and has been viewed both as a restraint and as a safety device. Side rails are commonly used to minimize falls from hospital beds, but descriptive studies have shown that falls occur from bed despite the use of side rails (Evans, Hodgkinson, Lambert, Wood, & Kowanko, 1998). Findings from this study found that 65.7% of healthcare staff used side rails to prevent falls. Therefore, a retrospective/prospective study about the relationship between fall and side rail use is recommended, as well as effort to use one rail only.

3. The patient, if unrestrained, may remove medical devices, as well as, the patient, if restrained, may also remove medical devices. Therefore, further research

about relationship between physical restraint use and medical device removal especially self extubation is recommended.

4. Development of an appropriate educational intervention and guideline suitable for practice about PRU in Thailand is recommended such as education on fall and treatment inference, interventions designed to eliminate the need for side rails, education and support for families, better training for staff to provide individualized care to person interfering with treatment, and policies for the hospital and use of incident reporting for restraint use.

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APPENDICES

APPENDIX A
LIST OF EXPERTS

1. Associate Professor Prakong Intarasombat, M.Ed.
   Department of Nursing
   Faculty of Medicine, Ramathibodi Hospital
   Mahidol University
2. Associate Professor Sunutra Taboonpong, Ph.D. (Nursing)
   Department of Medical Nursing
   Faculty of Nursing
   Prince of Songkla University
3. Associate Professor Linchong Pothiban, Ph.D. (Nursing)
   Faculty of Nursing
   Chiangmai University

APPENDIX B
STUDY APPROVAL FROM THE INSTITUTE REVIEW BOARD OF SONGKLANAGARIND HOSPITAL

SUB.EC 50/400-037

คณะแพทยศาสตร์ มหาวิทยาลัยสงขลานครินทร์
ตำบลคอหงส์ อำเภอหาดใหญ่
จังหวัดสงขลา 90110

หนังสือรับรองนี้ให้ไว้เพื่อแสดงว่า

โครงการวิจัยเรื่อง : การศึกษาการใช้การผูกยึดในผู้ป่วยสูงอายุที่เข้ารับการรักษาในโรงพยาบาล
หัวหน้าโครงการ : นางสาวบุศรา เอี้ยวสกุล
ภาควิชา/คณะ : คณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์

ได้ผ่านกระบวนการพิจารณารับรองจากคณะอนุกรรมการพิจารณาจริยธรรมการวิจัยในคนจากเวชระเบียนและสิ่งส่งตรวจจากร่างกายมนุษย์ ของคณะแพทยศาสตร์ มหาวิทยาลัยสงขลานครินทร์ แล้ว

ให้ไว้ ณ วันที่ 15 ตุลาคม 2550

.....ประธานอนุกรรมการ
(รองศาสตราจารย์นายแพทย์พุฒิศักดิ์ พุทธวิบูลย์)
รักษาการในตำแหน่งรองคณบดีฝ่ายวิจัยและนวัตกรรม

APPENDIX C
LETTER OF PERMISSION

บันทึกข้อความ

ส่วนราชการ ฝ่ายบริการพยาบาล โทร. 1662-1664
ที่ มอ 395/ ๔๔๓๗ **วันที่** ๑๐ ตุลาคม 2550
เรื่อง ขออนุญาตเก็บข้อมูลวิจัย

เรียน คณบดี

ตามหนังสือที่ มอ 632/548 ลงวันที่ 28 กันยายน 2550 คณะพยาบาลศาสตร์ มหาวิทยาสงขลานครินทร์ ขออนุญาตให้ นางสาวบุศรา เอี้ยวสกุล นักศึกษาปริญญาเอก หลักสูตรปรัชญาดุษฎีบัณฑิต โครงการร่วมระหว่างโรงพยาบาลรามาธิบดี คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี และคณะพยาบาลศาสตร์ ศิริราชพยาบาล มหาวิทยาลัยมหิดล(หลักสูตรนานาชาติ ร่วมกับมหาวิทยาลัยในต่างประเทศ) เก็บข้อมูลวิจัยเรื่อง "การศึกษาการใช้การผูกยึดในผู้ป่วยสูงอายุที่เข้ารับการรักษาในโรงพยาบาล" ซึ่งจะเก็บข้อมูล ณ หอผู้ป่วยอายุรกรรมหญิง, หอผู้ป่วยอายุรกรรมชาย 1,หอผู้ป่วยอายุรกรรมชาย 2,หอผู้ป่วยศัลยกรรมหญิง, หอผู้ป่วยศัลยกรรมชาย 1,หอผู้ป่วยศัลยกรรมชาย 2,หอผู้ป่วยศัลยกรรมประสาท,หอผู้ป่วยกระดูกและข้อหญิง และ หอผู้ป่วยกระดูกและข้อชาย โดยการแจกแบบสอบถามให้กลุ่มตัวอย่าง จะเริ่มเก็บข้อมูลวันที่ 1 ตุลาคม 2550 – 31 ธันวาคม 2550 ความแจ้งแล้ว นั้น

ฝ่ายบริการพยาบาล พิจารณาแล้วอนุญาตให้เก็บข้อมูลวิจัยดังกล่าว โดยผู้เก็บข้อมูลวิจัยสามารถเก็บข้อมูลได้เมื่อผ่านการพิจารณาจากคณะกรรมการด้านจริยธรรมเรียบร้อยแล้ว

จึงเรียนมาเพื่อโปรดพิจารณาดำเนินการต่อไปด้วย จะเป็นพระคุณยิ่ง

(ดร.สมสมัย สุธีรศานต์)
รักษาการในตำแหน่ง หัวหน้าฝ่ายบริการยาบาล

สำเนาเรียน ผตก./หัวหน้าหอผู้ป่วยอายุรกรรมหญิง, หอผู้ป่วยอายุรกรรมชาย 1, หอผู้ป่วยอายุรกรรมชาย 2, หอผู้ป่วยศัลยกรรมหญิง,หอผู้ป่วยศัลยกรรมชาย 1,หอผู้ป่วยศัลยกรรมชาย 2,หอผู้ป่วยศัลยกรรมประสาท, หอผู้ป่วยกระดูกและข้อหญิง,หอผู้ป่วยกระดูกและข้อชาย

APPENDIX D
INFORMATION SHEET (IN THAI)

ใบเชิญชวนเข้าร่วมโครงการวิจัย

เรียน ท่านผู้อ่านที่นับถือ

ดิฉันชื่อ นางสาวบุศรา เอี้ยวสกุล นักศึกษาปริญญาเอก สาขาวิชาการพยาบาล หลักสูตรปรัชญาดุษฎีบัณฑิต โครงการร่วมระหว่างโรงเรียนพยาบาลรามาธิบดี คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี และคณะพยาบาลศาสตร์ ศิริราชพยาบาล มหาวิทยาลัยมหิดล (หลักสูตรนานาชาติ ร่วมกับมหาวิทยาลัยในต่างประเทศ) กำลังทำวิจัยเพื่อประกอบการทำวิทยานิพนธ์เรื่อง การศึกษาการใช้การ ผูกยึดในผู้ป่วยสูงอายุที่เข้ารับการรักษาในโรงพยาบาล โดยมีวัตถุประสงค์การวิจัยเพื่อสำรวจการใช้การผูกยึดและปัจจัยที่เกี่ยวข้องในผู้ป่วยสูงอายุที่เข้ารับการรักษาในโรงพยาบาล เนื่องจากการผูกยึดเป็นทางเลือกหนึ่งที่ใช้ควบคุมพฤติกรรมที่เสี่ยงต่อการเกิดอันตรายต่อผู้ป่วยที่เข้ารับการรักษาในโรงพยาบาล ถูกนำมาใช้โดยคำนึงถึงความปลอดภัยของผู้ป่วยเป็นสำคัญ และได้รับการยอมรับอย่างหลีกเลี่ยงไม่ได้ อย่างไรก็ตามงานวิจัยในต่างประเทศมากมายพบว่า การผูกยึดก่อให้เกิดผลเสียมากกว่าผลดี ดังนั้น งานวิจัยนี้นับว่าเป็นก้าวแรกที่สำคัญที่จะนำไปสู่การรวบรวมข้อมูลขั้นพื้นฐานเกี่ยวกับการผูกยึดและปัจจัยที่เกี่ยวข้อง อันจะนำไปสู่การพัฒนาแนวทางที่เหมาะสมในการจัดการกับพฤติกรรมของผู้ป่วย โดยใช้การผูกยึดให้น้อยที่สุดต่อไป

ถ้าท่านตัดสินใจเข้าร่วมในโครงการนี้ ท่านจะต้องทำแบบสอบถาม ซึ่งเป็นข้อมูลที่ท่านมีประสบการณ์โดยตรงอยู่แล้ว และเป็นการเก็บข้อมูลเพียงครั้งเดียว ใช้ระยะเวลาสั้น ไม่มีการทดลองในบุคคล ไม่ก่อให้เกิดอันตรายและไม่มีความเสี่ยงจากการเข้าร่วมวิจัย ข้อมูลที่ได้จากท่านทั้งหมดจะเป็นความลับ ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นข้อมูลส่วนรวม ท่านสามารถถอนตัวออกจากการวิจัยนี้ได้ทุกเมื่อ โดยไม่มีผลกระทบแต่ประการใด

ถ้าท่านมีคำถามใดๆ ท่านสามารถซักถามผู้วิจัยได้อย่างเต็มที่ ตามสถานที่อยู่ **ภาควิชาการพยาบาลอายุรศาสตร์ คณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์** และหมายเลขโทรศัพท์ **081-9575930** ในเวลาราชการ/ตลอดเวลา

ลงชื่อ (ผู้วิจัย)

Consent Form (in Thai)

หนังสือแสดงเจตนายินยอมเข้าร่วมโครงการวิจัย

ชื่อโครงการ **การศึกษาการใช้การผูกยึดในผู้ป่วยสูงอายุที่เข้ารับการรักษาในโรงพยาบาล**

ข้าพเจ้า (นาย นาง นางสาว) **……..**(นามสกุล)**…….**

ยินยอมเข้าร่วมโครงการวิจัยโดยได้รับคำอธิบายจาก **นางสาวบุศรา เอี้ยวสกุล** ดังใบเชิญชวนให้เข้าร่วมโครงการวิจัยที่แนบมานี้

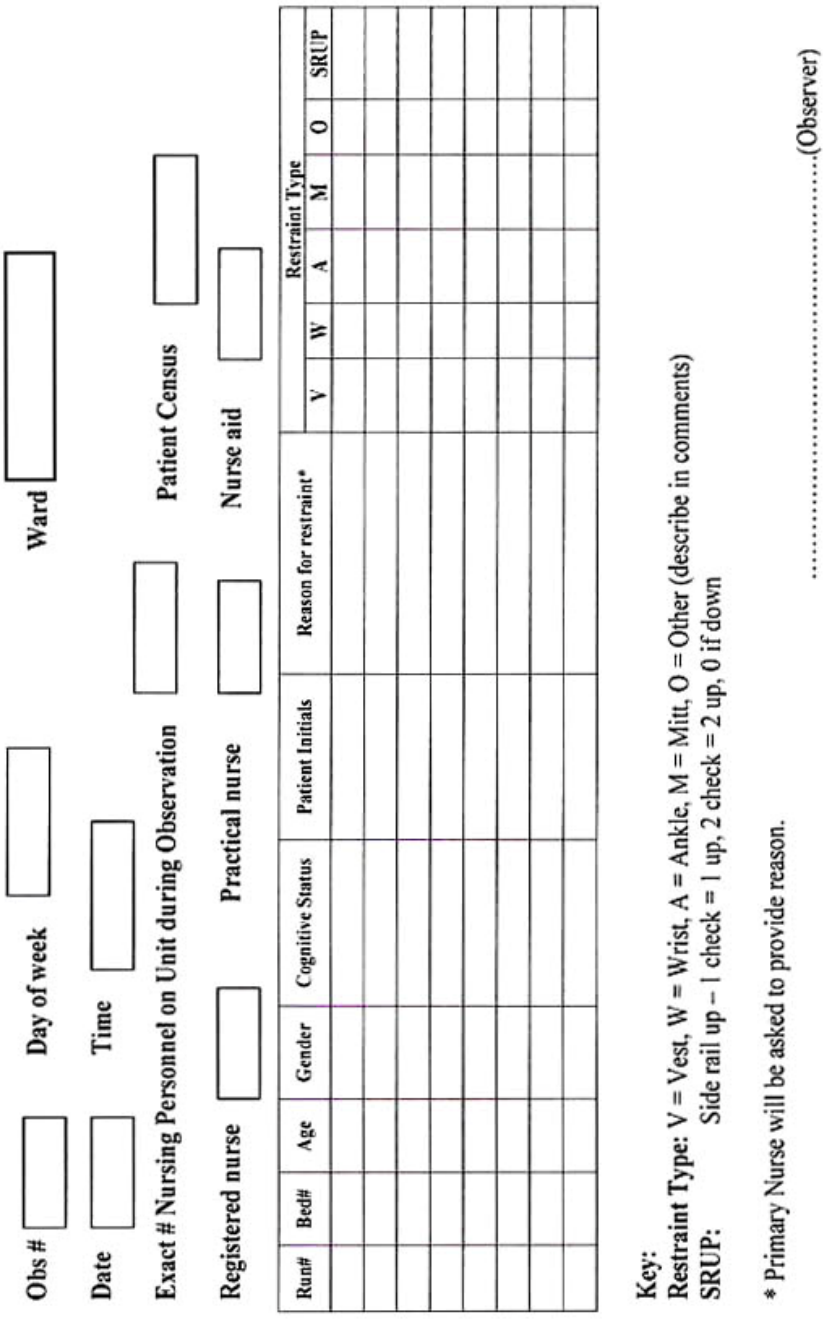
หากข้าพเจ้ามีข้อสงสัยเกี่ยวกับขั้นตอนของการวิจัย ข้าพเจ้ามีสิทธิซักถาม นางสาวบุศรา เอี้ยวสกุล ที่ 081-9575930 ได้ตลอด 24 ชั่วโมง หากข้าพเจ้าได้รับการปฏิบัติไม่ตรงตามที่ได้ระบุไว้ในใบเชิญชวนให้เข้าร่วมโครงการวิจัย ข้าพเจ้ามีสิทธิแจ้งต่อประธานกรรมการพิจารณาจริยธรรมการวิจัยในคน (คณบดี คณะแพทยศาสตร์ โทร.074-451100) หรือ ผู้อำนวยการโรงพยาบาลสงขลานครินทร์ (โทร.074-451010) ได้ และข้าพเจ้าสามารถถอนตัวจากการวิจัยได้ทุกเมื่อ โดยไม่มีผลกระทบแต่ประการใด

ข้าพเจ้าได้อ่านและเข้าใจข้อความในใบเชิญชวนให้เข้าร่วมโครงการวิจัย และหนังสือแสดงเจตนายินยอมเข้าร่วมโครงการวิจัยนี้โดยตลอดแล้ว จึงลงลายมือชื่อไว้

…….	…….
( )	
(ลายเซ็นผู้ป่วย/อาสาสมัคร)	(วัน/เดือน/ปี)
…….	…….
( )	
(ลายเซ็นนักวิจัย)	(วัน/เดือน/ปี)
…….	…….
( )	
(ลายเซ็นพยาน)	(วัน/เดือน/ปี)

APPENDIX E

PHYSICAL RESTRAINT USE OBSERVATION TOOL



Obs # ____ Day of week ____ Ward ____

Date ____ Time ____

Exact # Nursing Personnel on Unit during Observation ____ Patient Census ____

Registered nurse ____ Practical nurse ____ Nurse aid ____

Run#	Bed#	Age	Gender	Cognitive Status	Patient Initials	Reason for restraint*	Restraint Type					
							V	W	A	M	O	SRUP

Key:
Restraint Type: V = Vest, W = Wrist, A = Ankle, M = Mitt, O = Other (describe in comments)
SRUP: Side rail up – 1 check = 1 up, 2 check = 2 up, 0 if down

* Primary Nurse will be asked to provide reason.

.....(Observer)

APPENDIX F
PHYSICAL RESTRAINT USE QUESTIONNAIRE

Code No ……..
Date …….
Ward……

Please take a few moments to fill out the survey below, place it in the basket provided, and it will be collected by the researcher on (date).

By completing this questionnaire, I am giving my consent to participate.

Demographic Data

1. Age: …… Years……Months

2. Gender: □ Male □ Female

3. Education: □ MSN or master's degree in another field……

□ BSN □ Diploma □ High School

4. Have you had any special training, education, seminar, conference, or topic about physical restraint use?

□ Yes □ No

If yes, please explain……

…….

…….

5. How many years have you worked at this hospital? ……. Years……. Months

6. Have you had any special training, education, seminar, conference, or topic in geriatrics? □ Yes □ No

If yes, please explain……

…….

…….

Instruction: This questionnaire contains 6 sections including open and closed-ended questionnaire. For item 1-9, please ask yourself the following question when you answer an item: “In general, do you believe that restraints:” Repeat the same question when you answer the next item.

Section I: Attitude Items	**Score**
In general, do you believe that restraints:	
1. □ are always undesirable	(1)
□ are undesirable but necessary	(2)
□ are normal and necessary	(3)
□ are beneficial	(4)
2. □ increase patients’ sensory stimulation	(3)
□ decrease patients’ sensory stimulation	(1)
□ neither increase nor decrease patients’ sensory stimulation	(2)
3. □ increase confusion	(1)
□ decrease confusion	(3)
□ neither increase nor decrease confusion	(2)
4. □ increase the risk of falling out of bed	(1)
□ decrease the risk of falling out of bed	(3)
□ neither increase nor decrease the risk of falling out of bed	(2)
5. □ increase injury to restrained patients	(1)
□ decrease injury to restrained patients	(3)
□ neither increase nor decrease injury to restrained patients	(2)
6. □ increase pulling out therapeutic devices	(1)
□ decrease pulling out therapeutic devices	(3)
□ neither increase nor decrease pulling out therapeutic devices	(2)
7. □ increase nursing care time	(1)
□ decrease nursing care time	(3)
□ neither increase nor decrease nursing care time	(2)
8. In general, do you believe that:	
□ most patients who are restrained must be restrained	(4)
□ some patients who are restrained must be restrained	(3)
□ few patients who are restrained must be restrained	(2)
□ no patients who are restrained must be restrained	(1)
9. When applying restraints, do you feel:	
□ very guilty because you are robbing a patient of freedom	(1)
□ a little guilty because you are robbing a patient of freedom	(2)
□ in doubt because you know you are robbing a patient of freedom but wish to protect her or him	(3)
□ satisfied that you are carrying out a necessary nursing action	(4)

For item 10-19, In general, do you agree with these statements?

Item	Strongly agree	Agree	Disagree	Strongly disagree
10. Bed rails is as a physical restraints	(1)	(2)	(3)	(4)
11. Restraint is a means for assuring safe care	(4)	(3)	(2)	(1)
12. It is important to apply restraints to assure legal protection for myself and the hospital when a fall has occurred	(4)	(3)	(2)	(1)
13. Patients should not be restrained without a physician's order	(1)	(2)	(3)	(4)
14. Restraining a patient insults his/her rights	(1)	(2)	(3)	(4)
15. When a patient is restrained he/she feels humiliated	(1)	(2)	(3)	(4)
16. Patients are being restrained due to insufficient staff	(4)	(3)	(2)	(1)
17. Family members should participate in decisions to restrain a relative	(1)	(2)	(3)	(4)
18. The presence of a family member is an alternative to restraint	(1)	(2)	(3)	(4)
19. There are good alternatives to restraint and that these should be tried first, before any decision to restrain	(1)	(2)	(3)	(4)

Section II: Alternatives to restraints

20. Please list any alternatives to the use of physical restraints.

……
……
……

Section III: Administrative Support

21. Is there support from administrators when a decision is made not to use a restraint?

□ Strongly agree
□ Agree
□ Disagree
□ Strongly disagree

Please give your examples……..
……..

Section IV: Intra-and Interdisciplinary Collaboration

22. When I restrain a patient, I make this decision
    - □ Alone
    - □ With a peer
    - □ With my team leader or head nurse
    - □ With a physician
    - □ Only with a physician's order

Section V: Rationale for Usage

23. Please rank the importance of rationale for physical restraint use. Number each item in the blank box provided by "1" for "the most important", and 5 "the least important".
    - □ Preventing falls
    - □ Protecting medical devices
    - □ Controlling agitated behavior
    - □ Fear of liability if falling is occurred
    - □ Preventing harm to patient or others

Section VI: Policies and special guidelines

24. If there are any special guidelines or policies about the use of physical restraints on your ward, would you please describe them briefly.

    ……
    ……

Physical Restraint Use Questionnaire (in Thai)

แบบสอบถามการใช้การผูกยึด

หมายเลขรหัส.....

วันที่.....

หอผู้ป่วย.....

กรุณาสละเวลาเพียงเล็กน้อยเพื่อกรอกแบบสอบถามข้างล่างนี้ และกรุณาคืนใส่ในตะแกรงที่เตรียมไว้ให้ โดยผู้วิจัยจะมารับคืนภายใน (วันที่)

ฉันมีความยินดีให้ความร่วมมือกรอกแบบสอบถามนี้

ข้อมูลส่วนบุคคล

1. อายุ:.....ปี.....เดือน
2. เพศ: ☐ ชาย ☐ หญิง
3. การศึกษา:
   ☐ พยาบาลศาสตรมหาบัณฑิต (พยม.) หรือ ปริญญาโทในสาขาอื่น.....
   ☐ วิทยาศาสตรบัณฑิต (พยาบาลและผดุงครรภ์)/พยาบาลศาสตรบัณฑิต
   ☐ ประกาศนียบัตร ☐ มัธยมศึกษา
4. ท่านเคยได้รับการฝึกอบรมระยะสั้นหรือการศึกษาเฉพาะทางหรือสัมนา ประชุม หรือประเด็นเกี่ยวกับการใช้การผูกยึดใช่หรือไม่
   ☐ ใช่ ☐ ไม่ใช่
   ถ้าใช่ โปรดอธิบาย

.....

.....

5. ท่านทำงานที่โรงพยาบาลนี้มาเป็นเวลา.....ปี.....เดือน
6. ท่านเคยได้รับการฝึกอบรมระยะสั้นหรือการศึกษาเฉพาะทางหรือสัมนา ประชุม หรือประเด็นทางด้านผู้สูงอายุใช่หรือไม่ ☐ ใช่ ☐ ไม่ใช่
   ถ้าใช่ โปรดอธิบาย .....

   .....

คำสั่ง: แบบสอบถามนี้ประกอบด้วย 6 ตอน เป็นคำถามทั้งปลายเปิดและปลายปิด
สำหรับคำถาม ‘โดยทั่วไป ท่านเชื่อว่าการผูกยึดผู้ป่วย…’ ใช้ตอบคำถามข้อ 1-9
เมื่อท่านตอบคำถามข้อ 1 แล้ว โปรดอ่านคำถามเดิมซ้ำเพื่อตอบคำถามข้อ 2-9

ตอนที่ 1: ด้านทัศนคติ	คะแนน
โดยทั่วไป ท่านเชื่อว่า การผูกยึดผู้ป่วย:	
1. ☐ ไม่เป็นที่พึงปรารถนาตลอดเวลา	(1)
☐ ไม่เป็นที่พึงปรารถนาแต่จำเป็น	(2)
☐ เป็นเรื่องธรรมดาและจำเป็น	(3)
☐ เป็นประโยชน์	(4)
2. ☐ เพิ่มการกระตุ้นความรู้สึกต่อผู้ป่วยที่ถูกผูกยึด	(3)
☐ ลดการกระตุ้นความรู้สึกต่อผู้ป่วยที่ถูกผูกยึด	(1)
☐ ไม่เพิ่มและไม่ลดการกระตุ้นความรู้สึกต่อผู้ป่วยที่ถูกผูกยึด	(2)
3. ☐ เพิ่มความสับสนต่อผู้ป่วยที่ถูกผูกยึด	(1)
☐ ลดความสับสนต่อผู้ป่วยที่ถูกผูกยึด	(3)
☐ ไม่เพิ่มและไม่ลดความสับสนต่อผู้ป่วยที่ถูกผูกยึด	(2)
4. ☐ เพิ่มความเสี่ยงของการตกเตียงต่อผู้ป่วยที่ถูกผูกยึด	(1)
☐ ลดความเสี่ยงของการตกเตียงต่อผู้ป่วยที่ถูกผูกยึด	(3)
☐ ไม่เพิ่มและไม่ลดการตกเตียงต่อผู้ป่วยที่ถูกผูกยึด	(2)
5. ☐ เพิ่มการบาดเจ็บต่อผู้ป่วยที่ถูกผูกยึด	(1)
☐ ลดการบาดเจ็บต่อผู้ป่วยที่ถูกผูกยึด	(3)
☐ ไม่เพิ่มและไม่ลดการบาดเจ็บต่อผู้ป่วยที่ถูกผูกยึด	(2)
6. ☐ เพิ่มการดึงอุปกรณ์เกี่ยวกับการรักษาโรคออก	(1)
☐ ลดการดึงอุปกรณ์เกี่ยวกับการรักษาโรคออก	(3)
☐ ไม่เพิ่มและไม่ลดการดึงอุปกรณ์เกี่ยวกับการรักษาโรคออก	(2)
7. ☐ เพิ่มเวลาของการดูแลทางการพยาบาล	(1)
☐ ลดเวลาของการดูแลทางการพยาบาล	(3)
☐ ไม่เพิ่มและไม่ลดเวลาของการดูแลทางการพยาบาล	(2)

ตอนที่ 1: ด้านทัศนคติ	คะแนน
8. โดยทั่วไป ท่านเชื่อว่า	
☐ ในจำนวนผู้ป่วยที่ถูกผูกยึดทั้งหมด ส่วนใหญ่แล้วสมควรถูกผูกยึด	(4)
☐ ในจำนวนผู้ป่วยที่ถูกผูกยึดทั้งหมด มีผู้ป่วยบางคนเท่านั้นที่สมควรถูกผูกยึด	(3)
☐ ในจำนวนผู้ป่วยที่ถูกผูกยึดทั้งหมด มีผู้ป่วยส่วนน้อยเท่านั้นที่สมควรถูกผูกยึด	(2)
☐ ในจำนวนผู้ป่วยที่ถูกผูกยึดทั้งหมด ไม่มีผู้ป่วยที่ถูกผูกยึดคนใดสมควรถูกผูกยึด	(1)
9. เมื่อใช้การผูกยึดผู้ป่วย ท่านรู้สึก	
☐ ผิดอย่างมากเพราะท่านกำลังปล้นอิสรภาพของผู้ป่วย	(1)
☐ ผิดเล็กน้อยเพราะท่านกำลังปล้นอิสรภาพของผู้ป่วย	(2)
☐ ไม่แน่ใจเพราะท่านรู้ว่าท่านกำลังปล้นอิสรภาพของผู้ป่วย แต่ปรารถนาจะปกป้องหล่อนหรือเขา	(3)
☐ พึงพอใจว่าท่านกำลังปฏิบัติกิจกรรมทางการพยาบาลที่จำเป็น	(4)

โดยทั่วไป ท่านเห็นด้วยกับข้อความต่อไปนี้มากน้อยเพียงใด

ข้อความ	เห็นด้วยอย่างมาก	เห็นด้วย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างมาก
10. การยกไม้กั้นเตียงเป็นวิธีการหนึ่งของการผูกยึดผู้ป่วยหรือการจำกัดการเคลื่อนไหว	(1)	(2)	(3)	(4)
11. การผูกยึดผู้ป่วยเป็นวิธีหนึ่งในการรับประกันถึงการดูแลที่ปลอดภัย	(4)	(3)	(2)	(1)
12. การผูกยึดผู้ป่วยเป็นสิ่งจำเป็นที่ต้องทำเพื่อช่วยป้องกันตนเองและโรงพยาบาลจากความผิดทางกฎหมายในกรณีที่ผู้ป่วยเกิดการตกเตียง	(4)	(3)	(2)	(1)
13. การผูกยึดผู้ป่วยต้องได้รับคำสั่งจากแพทย์ก่อน	(1)	(2)	(3)	(4)
14. การผูกยึดผู้ป่วยเป็นการละเมิดสิทธิ์ของผู้ป่วย	(1)	(2)	(3)	(4)

ข้อความ	เห็นด้วยอย่างมาก	เห็นด้วย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างมาก
15. การผูกยึดเป็นการทำให้ผู้ป่วยรู้สึกอับอาย	(1)	(2)	(3)	(4)
16. ผู้ป่วยเคยถูกผูกยึดเพราะว่าจำนวนบุคลากรทางการพยาบาลมีไม่เพียงพอ	(4)	(3)	(2)	(1)
17. ญาติ/สมาชิกในครอบครัวควรมีส่วนร่วมในการตัดสินใจที่จะอนุญาตหรือปฏิเสธให้ผู้ป่วยถูกผูกยึด	(1)	(2)	(3)	(4)
18. การให้ญาติ/สมาชิกในครอบครัวอยู่เฝ้าดูแลผู้ป่วยเป็นทางเลือกหนึ่งที่สามารถใช้แทนการผูกยึดได้	(1)	(2)	(3)	(4)
19. มีทางเลือกอื่นที่ดีกว่าแทนการผูกยึดและทางเลือกเหล่านั้นควรจะถูกนำมาใช้เป็นอันดับแรก	(1)	(2)	(3)	(4)

ตอนที่ 2: ทางเลือก

20. ที่ผ่านมา ท่านใช้วิธีใดถ้าท่านไม่ใช้การผูกยึด

……

……

ตอนที่ 3: การสนับสนุนของผู้บริหาร

21. ที่ผ่านมา ผู้บริหาร (หัวหน้าตึก/ผู้ตรวจการ) เห็นด้วยหรือไม่เมื่อท่านตัดสินใจไม่ใช้การผูกยึด

☐ เห็นด้วยอย่างมาก

☐ เห็นด้วย

☐ ไม่เห็นด้วย

☐ ไม่เห็นด้วยอย่างมาก

โปรดยกตัวอย่างอธิบายเพิ่มเติม ……..

…….

ตอนที่ 4: การร่วมมือภายในและระหว่างสาขาวิชาชีพหรือทีมสุขภาพ

22. เมื่อท่านผูกยึดผู้ป่วย ท่านตัดสินใจ

☐ เพียงคนเดียวหรือด้วยตนเอง

☐ กับผู้ร่วมงาน

☐ กับผู้นำทีมของท่านหรือหัวหน้าพยาบาล

☐ กับแพทย์

☐ กับคำสั่งของแพทย์เพียงอย่างเดียว

ตอนที่ 5: เหตุผลสำหรับการใช้

23. โปรดจัดอันดับความสำคัญของเหตุผลสำหรับการใช้การผูกยึด ให้หมายเลขในแต่ละข้อในช่องว่างที่ให้ไว้ โดย “1” สำหรับ “ข้อความที่สำคัญมากที่สุด”, และ “5” “ข้อความที่สำคัญน้อยที่สุด”

☐ ป้องกันการหกล้ม

☐ ป้องกันอุปกรณ์ทางการแพทย์

☐ ควบคุมพฤติกรรมวุ่นวาย

☐ กลัวความรับผิดชอบถ้ามีการหกล้มเคยเกิดขึ้น

☐ ป้องกันอันตรายต่อผู้ป่วยหรือคนอื่น

ตอนที่ 6: นโยบายและแนวปฏิบัติเกี่ยวกับการใช้การผูกยึด

24. ถ้ามีแนวปฏิบัติหรือนโยบายเฉพาะทางเกี่ยวกับการใช้การผูกยึดบนหอผู้ป่วยของท่าน โปรดกรุณาอธิบายโดยย่อ

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APPENDIX G

ADMINISTRATIVE QUESTIONNAIRE

Code No ……..
Date …….
Title……

Please take a few moments to fill out the survey below, place it in the envelope provided, and it will be collected by the researcher on (date).

By completing this questionnaire, I am giving my consent to participate.

Demographic Data

1. Age: …… Years……Months
2. Gender: □ Male □ Female
3. Education: □ MSN or master's degree in another field……
   □ BSN
4. Have you had any special training, education, seminar, conference, or topic about physical restraint use?
   □ Yes □ No
   If yes, please explain……
   …….
   …….
5. How many years have you worked at this hospital? ……. Years……. Months
6. Have you had any special training, education, seminar, conference, or topic in geriatrics? □ Yes □ No
   If yes, please explain……
   …….
   …….

Instruction: Please answer the following questions and if possible, please give the investigator the relevant documents, so that the investigator could review them.

1. Describe briefly any special guidelines and/or policies and/or administrative manuals about the use of physical restraints on your ward and/or hospital. (If possible, please give the investigator these materials, so that the investigator could review them.)

……
……
……
……
……

2. What is the accepted standard of practice for physical restraint use at this hospital?

……
……
……

3. Are there hospital policies, and existing certification and regulatory guidelines, considered to be standards of geriatric medical or nursing practice at this hospital? If so, please note so that the investigator could review these materials.

……
……
……
……

4. What special training, education, seminar, conference, or topic is available regarding standards of practice for use of physical restraints or care of elderly patients? How is such education made available to staff?

……
……
……
……
……

5. Could you comment on staffing ratios and relationship to physical restraint use or care of elderly patients?

……
……
……
……
……

6. What types of alternatives (environmental, equipment, etc.) are available to be used instead of physical restraints to meet patient needs?

……
……
……
……
……

Administrative Questionnaire (in Thai)
แบบสอบถามเกี่ยวกับนโยบายการผูกยึดผู้ป่วยสูงอายุสำหรับผู้บริหาร

หมายเลขรหัส.....

วันที่.....

ตำแหน่ง.....

กรุณาสละเวลาเพียงเล็กน้อยเพื่อกรอกแบบสอบถามข้างล่างนี้ และกรุณาคืนใส่ซองที่เตรียมไว้ให้โดยผู้วิจัยจะมารับคืนภายใน (วันที่)

ฉันมีความยินดีให้ความร่วมมือกรอกแบบสอบถามนี้

ข้อมูลส่วนบุคคล

1. อายุ:.....ปี.....เดือน
2. เพศ: ☐ ชาย ☐ หญิง
3. การศึกษา:
   ☐ พยาบาลศาสตรมหาบัณฑิต (พยม.) หรือ ปริญญาโทในสาขาอื่น.....
   ☐ วิทยาศาสตรบัณฑิต (พยาบาลและผดุงครรภ์)/พยาบาลศาสตรบัณฑิต
4. ท่านเคยได้รับการฝึกอบรมระยะสั้นหรือการศึกษาเฉพาะทางหรือสัมนา ประชุม หรือประเด็นเกี่ยวกับการใช้การผูกยึดใช่หรือไม่
   ☐ ใช่ ☐ ไม่ใช่
   ถ้าใช่ โปรดอธิบาย .....

.....

5. ท่านทำงานที่โรงพยาบาลนี้มาเป็นเวลา.....ปี.....เดือน
6. ประเภทของหอผู้ป่วย: ☐ อายุรกรรม ☐ ศัลยกรรม ☐ กระดูกและข้อ
7. ท่านเคยได้รับการฝึกอบรมระยะสั้นหรือการศึกษาเฉพาะทางหรือสัมนา ประชุม หรือประเด็นในทางด้านผู้สูงอายุใช่หรือไม่ ☐ ใช่ ☐ ไม่ใช่
   ถ้าใช่ โปรดอธิบาย

.....

<u>คำสั่ง</u>: โปรดตอบคำถามต่อไปนี้ ถ้ามีเอกสารที่เกี่ยวข้องกับประเด็นคำถาม ขอความกรุณาให้เอกสารเหล่านี้แก่ผู้วิจัย เพื่อทำการศึกษาเพิ่มเติม

1. โปรดอธิบายแนวทาง และ/หรือนโยบาย และ/หรือคู่มือของผู้บริหารโดยเฉพาะเพื่อการใช้การผูกยึดบนหอผู้ป่วยของท่าน และ/หรือโรงพยาบาลอย่างสั้นๆ (ถ้าเป็นไปได้ ขอความกรุณาให้เอกสารเหล่านี้แก่ผู้วิจัย เพื่อทำการศึกษาเพิ่มเติม)

.....
.....

2. มาตรฐานของการปฏิบัติสำหรับการใช้การผูกยึดที่ได้รับการยอมรับที่โรงพยาบาลแห่งนี้คืออะไร

.....
.....

3. โรงพยาบาลของท่านมีนโยบาย หนังสือรับรองและแนวทางการควบคุมที่มีอยู่ ที่ได้รับการพิจารณาให้เป็นมาตรฐานของการปฏิบัติทางการพยาบาลหรือการแพทย์ที่เกี่ยวกับผู้สูงอายุหรือไม่ ถ้ามี กรุณาให้รายละเอียดเพื่อผู้วิจัยสามารถทบทวนองค์ประกอบเหล่านี้

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.....

4. การฝึกอบรมระยะสั้นหรือการศึกษาเฉพาะทางหรือสัมนา ประชุม หรือประเด็นอะไรที่ได้จัดหาให้แก่เจ้าหน้าที่ในเรื่องเกี่ยวกับมาตรฐานของการปฏิบัติสำหรับการใช้การผูกยึดหรือการดูแลผู้ป่วยสูงอายุ การศึกษาเช่นนี้เหมาะที่จะให้ต่อเจ้าหน้าที่อย่างไร (2 คำตอบ)

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.....

5. กรุณาให้ข้อคิดเห็นต่ออัตราส่วนของเจ้าหน้าที่ที่มีความสัมพันธ์ต่อการใช้การผูกยึดหรือในการดูแลผู้ป่วยสูงอายุ

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.....

6. ท่านคิดว่ามีทางเลือกอะไรบ้าง (สิ่งแวดล้อม อุปกรณ์ ฯลฯ) ที่สามารถจัดหามาใช้แทนการผูกยึดเพื่อตอบสนองกับความต้องการของผู้ป่วย

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APPENDIX H
CHULA MENTAL TEST

This test consists of 13 items. Responses are summed to arrive at a total score, with a range from 0-19. The lower the score, the greater is the degree of cognitive impairment. The cut-off score is less than 15 meaning cognitive impairment. It will take time for interviewing about 3 minutes.

1. How old are you? (1 score)
2. What time is it? (1 score)
3. Please speak the follow words “umbrella, pan, door” (3 scores)
4. What month is it? (1 score)
5. Who are they? (physician, nurse or family member) (2 scores)
6. How much does rice of one gallon equal? (1 score)
7. Please obey the command “applaud your hands 3 times and put them down”. (1 score)
8. Ask him/her to tell the meaning of “Nee sur pha jarakha” (1 score)
9. Repeat the follow sentence after I have said them “I like flower, music, but I don’t like dog.” (1 score)
10. If you forget your key, how to do? (1 score)
11. Ask him/her to count the number from 10-20. (1 score)
12. Point to a watch and ask that “What is it?” (1 score) Point to a pen and ask that “What is it?” (1 score)
13. Ask him/her to calculate 20-3, 3 times. 20-3 = 17 (1 score), 17-3 = 14 (1 score), 14-3 = 11 (1 score).

Chula mental test (in Thai)

แบบทดสอบสภาพจิตจุฬา (Chula Mental Test)

แบบทดสอบนี้ประกอบด้วย 13 คำถาม คะแนนต่ำสุดเท่ากับ 0 คะแนนสูงสุดเท่ากับ 19 ถ้าได้คะแนนต่ำกว่า 15 แสดงว่าน่าจะมีความผิดปกติของ cognitive function คำถามมีดังต่อไปนี้

1. ปีนี้คุณอายุเท่าไร……..ปี (1 คะแนน)
2. ขณะนี้กี่โมง (อาจตอบคลาดเคลื่อนได้ 1 ชั่วโมง) …….. (1 คะแนน)
3. พูดคำว่า “ร่ม กระทะ ประตู” ให้ฟังชัดๆ 2 ครั้ง …….
   (ชื่อที่ถูก 1 ชื่อ = 1 คะแนน) (3 คะแนน)
4. เดือนนี้เดือนอะไร…… (1 คะแนน)
5. คนนั้นเป็นใคร (ถาม 2 คน เช่น แพทย์ พยาบาลหรือบุคคล
   ใกล้เคียง)……...
   (2 คะแนน)
6. ข้าว 1 ถัง มีกี่ลิตรหรือกี่กิโลกรัม (20 ลิตร หรือ 15 กิโลกรัม)…….
   (1 คะแนน)
7. ให้ผู้ถูกทดสอบทำตามคำสั่งที่จะบอกต่อไปนี้ “ให้ตบมือสามทีแล้วกอดอก” (1 คะแนน)
8. จงบอกความหมายของสุภาษิตต่อไปนี้ “หนีเสือปะจรเข้” (1 คะแนน)
   ……
   ตัวอย่างคำตอบที่ถูกต้องคือ
   - หนีสิ่งที่ไม่ดีไปพบกับสิ่งที่ไม่ดีอีก
   - หนีจากสถานการณ์หรือบุคคลที่เป็นอันตรายไปพบสถานการณ์หรือบุคคลที่เป็นอันตรายอีก
   - หนีจากสิ่งเลวร้ายไปพบสิ่งที่เลวร้ายกว่าเดิม
9. บอกผู้ถูกทดสอบว่าจงฟังประโยคต่อไปนี้ให้ดี เมื่อฟังจบแล้วให้พูดตามทันที (1 คะแนน)
   “ฉันชอบดอกไม้ เสียงเพลง แต่ไม่ชอบหมา”
10. ถามผู้ถูกทดสอบว่า “ถ้าลืมกุญแจบ้านจะทำอย่างไร” (1 คะแนน)
    ถ้าคำตอบมีเหตุผลเหมาะสม โดยที่คำตอบนั้นแสดงถึงความพยายามที่จะแก้ไขปัญหาด้วยความเป็นไปได้และไม่ก่อให้เกิดความเสียหายมาก

ตัวอย่างคำตอบที่ได้คะแนน

- ทดลองนำกุญแจอันอื่นหรือวัสดุที่ใช้แทนได้ที่มีอยู่ในบริเวณใกล้เคียงมาลองไขกุญแจ
- ตามช่างทำกุญแจ (ถ้าอยู่ไม่ไกลนัก)
- ไปขอกุญแจที่ผู้อื่นมีเก็บไว้ (เช่น ญาติ) ในกรณีที่อยู่ไม่ไกลจากบ้าน หาทางเข้าบ้าน (ถ้าสามารถทำได้) หรือขอความช่วยเหลือจากผู้อยู่ใกล้เคียง เช่น ปีนหน้าต่าง งัดช่องลม

ตัวอย่างคำตอบที่ไม่ได้คะแนน

- ไม่รู้จะทำอย่างไร นั่งรอจนกว่าจะมีคนอื่นกลับมา
- พังประตูเข้าไป
- ไปเอากุญแจที่บุคคลอื่นในบ้านเก็บไว้แต่อยู่ไกลมาก เช่น อยู่ต่างจังหวัด หรือใช้เวลาเดินทางนานมาก

11. บอกให้ผู้ถูกทดสอบนับเลขจาก 10-20 (1 คะแนน)
12. ชี้ไปที่นาฬิกา แล้วถามว่าคืออะไร (1 คะแนน) ชี้ไปที่ปากกา แล้วถามว่าคืออะไร (1 คะแนน)
13. บอกให้ผู้ถูกทดสอบลบเลขทีละ 3 จาก 20 ทั้งหมด 3 ครั้ง 20-3 = 17 (1 คะแนน), 17-3 = 14 (1 คะแนน), 14-3 = 11 (1 คะแนน)

BIOGRAPHY

NAME	Miss Busara Oearsakul
DATE OF BIRTH	29 February 1968
PLACE OF BIRTH	Phatthalung, Thailand
INSTITUTIONS ATTENDED	Prince of Songkla University, 1989: Bachelor of Science (Nursing and Midwifery) Mahidol University, 1999: Master of Nursing (Adult Nursing) University of Pennsylvania, 2005: Predocteral Visiting Fellow Mahidol University, 2009: Doctor of Philosophy (Nursing)
POSITION & OFFICE	Medical Department, Faculty of Nursing, Prince of Songkla University, Songkhla, Thailand Position : Assistant Professor 7 Tel. 081-9575930 E-mail: busarao@gmail.com
HOME ADDRESS	30 Maekhree, Tumbol Maekhri, Amphur Tamod, Phatthalung, Thailand Tel. 074-632400