การนำเสนอโปรแกรมการเชื่อในความสามารถแห่งตนในการฟื้นฟูสภาพที่บ้านสำหรับผู้ป่วยหลอดเลือดสมอง

ร้อยตำรวจโทหญิง เจือจันทน์ วัฒกีเจริญ

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาพยาบาลศาสตรดุษฎีบัณฑิต
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ปีการศึกษา 2549
ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย

A PROPOSED SELF-EFFICACY PROGRAM IN HOME-BASED REHABILITATION

FOR POST STROKE PATIENTS

Police Lieutenant Jeuajan Wattakiecharoen

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

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By	Police Lieutenant Jeuajan Wattakiecharoen
Filed of study	Nursing Science
Thesis Advisor	Associate Professor Jintana Yunibhand, Ph.D.,RN
Thesis Co-advisor	Associate Professor Sureeporn Thanasilp, D.N.S.,RN

Accepted by the Faculty of Nursing, Chulalongkorn University in Partial Fulfillment of the Requirements for the Doctoral Degree

..... Dean of the Faculty of Nursing
(Associate Professor Pol. Capt. Yupin Aungsuroch, Ph.D.,RN)

THESIS COMMITTEE

..... Chairman
(Associate Professor Pol. Capt. Yupin Aungsuroch, Ph.D.,RN)

..... Thesis Advisor
(Associate Professor Jintana Yunibhand, Ph.D.,RN)

..... Thesis Co-advisor
(Associate Professor Sureeporn Thanasilp, D.N.S.,RN)

.....Thesis Co-advisor
(Research Assistance Professor Sherry L Pomeroy, Ph.D.,RN)

..... Member
(Associate Professor Krisna Piravej, MD.)

....Member
(Assistant Professor Sukunya Prachusilpa, D.N.Sc.,RN)

....Member
(Associate Professor Siridej Sujiva, Ph.D.)

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ร้อยตำรวจโทหญิง เจือจันทน์ วัฒกีเจริญ: การนำเสนอโปรแกรมการเชื่อในความสามารถแห่งตนในการฟื้นฟูสภาพที่บ้านสำหรับผู้ป่วยหลอดเลือดสมอง (A PROPOSED SELF-EFFICACY PROGRAM IN HOME-BASED REHABILITATION FOR POST STROKE PATIENTS) อ. ที่ปรึกษา: รศ. ดร. จินตนา ยูนิพันธุ์, รศ. ดร. สุรีพร ธนศิลป์ และ ผศ. ดร. เชอรี แอล พอมมารอย 211 หน้า.

การวิจัยนี้มีวัตถุประสงค์เพื่อนำเสนอโปรแกรมการเชื่อในความสามารถแห่งตนและทดสอบผลของโปรแกรมการฟื้นฟูสภาพที่บ้านต่อความสามารถแห่งตนและภาวะการทำงานของร่างกายในผู้ป่วยหลอดเลือดสมอง โดยโปรแกรมนี้พัฒนาขึ้นจากการทบทวนวรรณกรรม การสังเกตการสัมภาษณ์ผู้ป่วยในสภาพการณ์จริง มุ่งเน้นการดำเนินการที่บ้านโดยใช้กรอบแนวคิดเรื่องการเชื่อในความสามารถแห่งตนของแบนดูรา(1986) โดยโปรแกรมนี้จะมุ่งเน้นการใช้ศักยภาพของผู้ป่วยและผู้ดูแลเป็นสำคัญ กลุ่มตัวอย่างคือผู้ป่วยหลอดเลือดสมองในชุมชนเขตอำเภอบ้านแพ้วจังหวัดสมุทรสาคร จำนวน 60 ราย ซึ่งได้รับการสุ่มแบบง่ายเพื่อเข้ากลุ่มควบคุมและกลุ่มทดลอง กลุ่มละ 30 ราย กลุ่มทดลองได้รับการพยาบาลตามปกติร่วมกับโปรแกรมการฟื้นฟูสภาพที่บ้าน ส่วนกลุ่มควบคุมได้รับการพยาบาลตามปกติอย่างเดียว ทำการทดสอบผลของโปรแกรมด้วยแบบวัดการปฏิบัติกิจวัตรประจำวัน โดยใช้แบบทดสอบ Barthel Index, Chula ADL ทำการวัดก่อนการใช้โปรแกรมและภายหลังการใช้โปรแกรมเป็นเวลาสามเดือน วิเคราะห์ข้อมูลโดยใช้โปรแกรม SPSS/PC

ผลการศึกษาพบว่า กลุ่มทดลองมีคะแนนของการเชื่อในความสามารถแห่งตนของผู้ป่วยภายหลังสูงกว่าก่อนการใช้โปรแกรมอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 แต่มีคะแนนของความคาดหวังในผลลัพธ์ของผู้ป่วยก่อนและหลัง การใช้โปรแกรมไม่แตกต่างกัน ส่วนกลุ่มควบคุมมีคะแนนของการเชื่อในความสามารถแห่งตนภายหลังสูงกว่าก่อนการใช้โปรแกรมอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 แต่มีคะแนนของความคาดหวังในผลลัพธ์ภายหลังและก่อนการใช้โปรแกรมไม่แตกต่างกัน กลุ่มทดลองมีคะแนนการเชื่อในความสามารถแห่งตนและคะแนนความคาดหวังในผลลัพธ์ของผู้ป่วยภายหลังการใช้โปรแกรมสูงกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 นั่นคือโปรแกรมการเชื่อในความสามารถแห่งตน ส่งผลให้ผู้ป่วยเกิดการเชื่อในความสามารถแห่งตนและภาวะการทำงานของร่างกายได้ ผลการศึกษาบ่งชี้ว่าการนำโปรแกรมนี้ไปใช้ในการดูแลผู้ป่วยที่บ้านสามารถเป็นไปได้ในทางปฏิบัติ โดยควรให้ความสำคัญของการเชื่อในความสามารถแห่งตนเพื่อส่งเสริมความสามารถในการดูแลตนเองของผู้ป่วย ตลอดจนพัฒนาศักยภาพของพยาบาลในการส่งเสริมให้ผู้ป่วยเกิดความเชื่อในความสามารถแห่งตนเอง

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

สาขาวิชาพยาบาลศาสตร์..... ลายมือชื่อนิสิต.....

ปีการศึกษา 2549 ..... ลายมือชื่ออาจารย์ที่ปรึกษา.....

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....

4577971736: MAJOR NURSING SCIENCE
KEY WORD:HOME-BASED REHABILITATION / POST STROKE / PHYSICAL FUNCTIONAL STATUS
JEUAJAN WATTAKIECHAROEN: A PROPOSED SELF-EFFICACY PROGRAM IN HOME -BASED REHABILITATION FOR POST STROKE PATIENTS. THESIS ADVISOR: ASSOC. PROF. JINTANA YUNIBHAND, Ph.D., THESIS CO-ADVISOR: ASSOC. PROF. SUREEPORN TANASILP, D.N.S. THESIS CO-ADVISOR: ASSIST. PROF. SHERRY L.POMEROY, Ph.D., 211 pp.

The purposes of this research were to proposed and test the effect of a home-based rehabilitation program on perceived self-efficacy, outcome expectation and physical functional status in post stroke patients. The program was developed by literature review, observation and interview post stroke patients in real setting. A home-based rehabilitation program based on self-efficacy concept of Bandura (1986). The sample included 60 post stroke patients with caregivers at Banphaeo Hospital, Samutsakorn province, were randomly assigned to an experimental group and a control group. The experimental group received a home-based rehabilitation program together with routine care, while the control group received only routine care. The physical functional status measured by Barthel Index and Chula ADL before and twelve weeks after intervention. The SPSS/PC for window program was used to analyze the data.

The findings revealed that the mean score on perceived self-efficacy of the experimental group at posttest phase was significantly higher than at the pretest phase (p-value,<05) and the mean score on outcome expectation at the posttest phase was not different than at the pretest phase (p-value,>05). While the mean score on perceived self-efficacy of the control group at the posttest phase was significantly different from the pretest phase (p-value,<05), the mean score on outcome expectation at the posttest and the pretest phase was not different. The posttest mean score on perceived self-efficacy and outcome expectation of the experimental group was significantly higher than the control group (p-value,<05). This study suggests that a home-based rehabilitation program could increase perceived self-efficacy in post stroke patients.

This program can be implemented within the nursing practice specifically at home by convince patients and their caregivers to get the most perceived self-efficacy.

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

JEUAJAN W

Field of study: Nursing Science.....Student's Signature.....

Academic Year: 2006 ..... Advisor's Signature.....

Co-advisor's Signature.....

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CHAPTER I

INTRODUCTION

Background and Significance of the Study

A stroke is a sudden injury to the brain caused by an abnormality in a brain blood vessel. Brain cells die when they no longer receive oxygen and nutrients from the blood or there is sudden bleeding into or around the brain (NINDS, 2005). Strokes come in two major varieties: hemorrhagic strokes, which are caused by bleeding into the brain, and ischemic strokes, which are caused by blockage of blood flow to the brain (Healthology, 2005)

Stroke is the second leading cause of death worldwide after an ischemic heart disease, with estimated 5.5 million subjects dying from a stroke every year (World Health Organization, 2004). Over 725,000 people experience a stroke each year in the U.S.A, and over 40,000 in Australia (Stewart, et al., 2006). In the United States of America a stroke is the leading cause of adult long term disability. Approximately 4,700,000 Americans have survived at least one stroke, with 1,100,000 individuals reporting functional limitations. Of the estimated 700,000 strokes that occurred in 2003, approximately 21.4 % will likely result in severe chronic disability and motor impairment after 12 months have reached an astounding 70% (American Heart Association, 2002; Kim, 2006).

A stroke is preventable, but prevention relies on good epidemiologic data. Two-thirds of all stroke deaths occur among people in developing countries. A stroke will be

among the five most important causes of disability in both developing and developed countries (Poungvarin, 1998; Viriyavejakul, 1990; Singh, 2000). A secular trend in mortality increased in India, Urban China, Philippines, Thailand, Sri Lanka, Iran, Pakistan, Nepal, Malaysia, Korea, and Taiwan (Khor, 2001; Singh, 2000).

A stroke is the third leading cause of death in Thailand as well as the United States of America, next to cancer and accidents or poisonings (Ministry of Public Health, 2002). Public Health Statistics shows that the incidence of a stroke has been on the increase (Suputtitada, Aksaranugraha,Granger & Sankaew, 2003). The prevalence in 2005 was 0.86% (age over 15 year). The mortality rate in 2003 was 30.8 per 100,000 and the incidence rate is not available (Chernrungroj, 2006).

Hospital care, long-term care, complete or partial working incapacity, and community support are all factors that contribute to enormous financial costs for patients, families, communities, and the health-care system (WHO 2004). There are different estimates of costs regarding management of strokes per patient in various regions. In the United States of America costs were estimated at $ 51.2 billion annually (American Heart Association, 2003). The cost of strokes in Thailand was mostly direct cost related to care and treatments ranging from $ 851-2,311 (31,500-85,500 bath per admission) (Suwanwela, 2004) or total cost was $ 4,066.6 (162,664.97 baths/person/year) (Youngkong, 2001). Therefore, stroke rehabilitation services imposed huge cost and accounted for the largest proportion of health services (American Heart Association, 2005).

The advanced medical technology has helped stroke victims to survive longer, however almost two thirds or approximately 75% of the survivors are left with varying

degrees of chronic disability, thus making a stroke a leading cause of disability in adults (WHO, 2004). According to the American Heart Association (2005) up to 30 % of post stroke patients face permanent disability. The types and degrees of disability that follow a stroke depend upon which area of the brain is damaged. Generally, strokes can cause five types of disabilities: paralysis or problems controlling movement; sensory disturbances including pain; problems using or understanding a language; problems with thinking and memory; and emotional disturbances (National Institute of Neurological Disorders and Stroke, 2005). Hemi-paralysis is one of the most common disabilities resulting from stroke (Post–Stroke Rehabilitation, 2005).

The paralysis is usually on the side of the body opposite the side of the brain damaged by strokes, and may affect the face, an arm, a leg, or the entire side of the body. Stroke patients with hemiparesis (one-sided weakness) or hemiplegia (one-sided paralysis) may have difficulty with everyday activities such as walking or grasping objects. Damage to a lower part of the brain, the cerebellum, can affect the body's ability to coordinate movement, a disability called ataxia, leading to problems with body posture, walking, and balance (Post–Stroke Rehabilitation, 2005).

There are many treatments on stroke. Generally, there are three treatment stages for strokes: 1) prevention, therapy immediately after the stroke, and post-stroke rehabilitation. Therapies to prevent a first or recurrent stroke are based on treating an individual's underlying risk factors for strokes, such as hypertension, atrial fibrillation, and diabetes, 2) trying to stop a stroke in acute stroke therapies while it is happening by quickly dissolving the blood clot causing an ischemic stroke or by stopping the bleeding of a hemorrhagic stroke, 3) rehabilitation in post-stroke helps individuals overcome

disabilities that result from stroke damage (National Institute of Neurological Disorders and Stroke, 2005).

The consequences of declined physical functional status are impairment, disability, and handicap (WHO, 1980). Most motor and functional recovery occurs in the first three months after stroke (Duncan et al., 1998; Jorgensen et al., 1999; Puangvarin, 1991; Wade, Wood & Langton-Hewer, 1985; Winkler, 1955; American Heart Association, 2003). Physical functional status is an integral component of achieving and maintaining independence in activities of daily living (ADL) and major contributor to overall health (American Heart Association, 2003).

Rehabilitation is the way to improve physical functional status and relearn skills that are lost when part of the brain is damaged. The goal of rehabilitation is to enable an individual who has experienced a stroke to reach the highest possible level of independence and be as productive as possible (American Heart Association, 2006). Stroke rehabilitation is a restorative learning process which seeks to hasten and maximize recovery from stroke by treating the disabilities (activities limitations) caused by the stroke and to prepare the post stroke patients to reintegrate as fully as possible into community life (NINDS, 2005).

There are many rehabilitation programs for post stroke patients which depend on health policy of each country. However, it could be characterized into four types (Stroke Organization, 2006). Firstly, inpatient programs or hospital programs: in an acute care facility or hospital rehabilitation. Inpatient facilities may be freestanding or part of larger hospital complexes. Patients stay in the facilities, usually for 1 to 2 weeks, and engage in a coordinated, intensive program of rehabilitation. Such programs often involve at least 3

hours of active therapy a day, 3 or 5 days a week. Inpatient facilities offer a comprehensive range of medical services, including full-time physician supervision and access to the full range of therapists specializing in post-stroke rehabilitation.

Secondly, outpatient programs, out patients department rehabilitation. Outpatient facilities are often part of a larger hospital complex and provide access to physicians and the full range of therapists specializing in stroke rehabilitation. Patients typically spend several hours, often 3 days each week, at the facility taking part in coordinated therapy sessions and return home at night. Comprehensive outpatient facilities frequently offer treatment programs as intense as those of inpatient facilities, but they also can offer less demanding regimens, depending on the patient's physical capacity.

Thirdly, rehabilitation center or long-term care facility with therapy and skilled nursing care (nursing home, hospice) include inpatient and outpatient units. Skilled nursing facilities usually place a greater emphasis on rehabilitation, whereas traditional nursing homes emphasize residential care. In addition, fewer hours of therapy are offered compared to outpatient and inpatient rehabilitation units. In some areas there were community resources in order to help rehabilitation to meet the goal. Community resources provided: 1) home health services, available from the public health departments, hospital home care departments and private home health agencies, 2) volunteers: hot meals are delivered to the homes of people who cannot easily shop and cook, other companion services: a paid or volunteer companion makes regular visits or phone calls to a person with disabilities.

Lastly, home-based programs: undergoing treatment at home gives people the advantage of practicing skills and developing compensatory strategies in the context of their own living environment (Stroke Organization, 2005).

Successful rehabilitation depends on: 1) amount of damage to the brain, 2) skill on the part of the rehabilitation team, 3) cooperation of family and friends. Caring family/friends can be one of the most important factors in rehabilitation, and 4) timing of rehabilitation – the earlier it begins the more likely survivors are to regain lost abilities and skills.

Post-stroke rehabilitation involves physician (primary responsibility for managing), neurologist, physiatrist (direct patient care during hospitalization.), physical therapists (specialize in treating disabilities related to motor and sensory impairments), occupational therapists (help survivors relearn skills needed for performing self-directed activities), recreational therapists (help survivors use their leisure time to enhance their health), speech-language therapists (help stroke survivors with aphasia relearn how to use language), and vocational therapists (help identify potential employers, assist in specific job searches), mental health professionals (help people to develop mental health during rehabilitation) and rehabilitation nurses specializing in rehabilitation help survivors. They also educate survivors about routine health care, and how to manage transfers between a bed and a wheelchair, and special needs for people with diabetes. Rehabilitation nurses also work with patients to reduce risk factors that may lead to a second stroke, and provide training for caregivers (NINDS, 2005).

Rehabilitation for the majority of the patients is not appropriate to manage in hospital especially for handicapped patients who find it difficult to travel and it also cost

them a lot of expense. It is possible for only some patients who have access to the services.

In Thailand, large hospitals provide complete rehabilitation team, but in small hospitals or in rural area only essential personnel are available in rehabilitation team: physicians, physical therapists and community nurses. In some area there is only a nurse who conducts post stroke rehabilitation. Nurses are closely involved in helping stroke patients manage personal care issues, relearn how to carry out basic activities of daily living and educate patients about routine health care, such as how to follow a medication schedule. Most stroke patients regain their ability to maintain ability during rehabilitation. Riewpibul (2001) proposed rehabilitation service in activities, person and setting of Thai post stroke patients. Most rehabilitation was provided in hospital, not in the community setting. Hospital rehabilitation was not suitable for people who lack transportation. Patients who lived in a community need rehabilitation program as a home therapy or homebound requirements to qualify for such rehabilitation services. Patients need rehabilitation in the context of their own living environment. Similar to the studies of Manimmanakorn, 1996; Narungsri et al., 2001; Hirunchunha, 1998, in post stroke patients showed that there was an increasing need for home-based rehabilitation services because of post stroke disability and inconvenience of client transportation between home and hospital.

Nurses take an important role in the health care team for stroke patients not only in the hospital but in the community also. A rehabilitation nurse in hospital is a nurse who coordinates the medical support needs of post stroke patients throughout rehabilitation (American Stroke Association, 2005). Rehabilitation nursing practice in a

community focuses on preparing people to return to the community to live the best quality of life possible. Nurses are in the position to play a pivotal role in the successful rehabilitation of post stroke patients. Education, assistance with problem solving, and follow up are particular strengths of rehabilitation nurses. The problem of rehabilitation in post stroke patients was not only a system, services, patients and caregivers' knowledge but program management. Program management consists of 3 domains including planning, implementation and evaluation.

Planning: The same goal and the same strategy in all patients although hey had individual difference. All patients did the same thing and the same technique. Home modification was not in the plan.

Implementation: In health teaching, most patients and caregivers received information in the same method and strategies. Nurse provided education strategies to patients and caregiver as a routine activity by group teaching with usual lesson plan focusing on the same contents that were not responsive to individual difference. The lesson plan placed an emphasis on providing necessary information and training in daily essential skills for patients and caregiver without consideration of the problem or scarce facilitating resources in their communities. Skill training for ADL activities did not give long enough time for caregivers to practice effectively. When teaching patients and caregivers, health care providers did not assess patients and caregivers needs for providing individualized knowledge to post stroke patients and family. The conventional program was not aware of patients and caregivers' potential, which develop abilities for their rehabilitation. The role of caregivers was assistance of patients in the conventional

program but in reality, caregivers had more competencies to act as control and behavior change agent.

This conventional program was not adequately provided to help stroke patients with disability in resuming normal activity at home, because it did not contain strategies that can help patients modify their life styles in accordance with non-facilitated situations at home. Patients who had impairment live with difficulty in their unmodified home.

Evaluation: There was no evaluation process after receiving information knowledge and practical skill. Assessment of the level of patients 'functioning was not determined after program implementation. The outcome of the conventional program was the frequency and duration of patients teaching or in other words they wanted to know how many patients who were taught by nurse or health care providers.

They were not concerned about competency detail of the program that post stroke patients can reach the highest possible level of independence and be as productive as possible such as: sitting, standing, referring, ADL activities and IADL activity. The proposed program can assess not only physical but also psychological competency. Post stroke patients had more bio-psycho-social insults from their disabilities. These physical impairment result on self-efficacy and had impact on patients behaviors in rehabilitation. The conventional program did not focus on the importance of the individual's ability to control their own behavior and how the changes in the individual and/or the environment produced changes in behavior.

Additional, continuity care for post stroke rehabilitation was not well planned or lost in the transition from hospital to home. The conventional program had no attempt to provide an adequate continuity care for post stroke that need further care after hospital

discharge. Without any extended facilitation, the patients had to restore their health in order to maintain a normal life in their own home. The patients had incorrect information about home environment which resulted in the unsuitable home modification. Almost all patients at the phase of hospital discharge to home need the intervention that could help them deal with the consequence of impairment or disability after stroke. Similar to the study of Narungsri et al., 2001; Tepdara et al., 2001; Riewpibul, 2001; Hirunchunha, 1998, they found that in many areas of Thailand, there had been the same problems in post stroke patients including: 1) co-ordination and authority of the interdisciplinary team; 2) lack of home visit services of a home health care system; 3) knowledge deficit of patients and care givers; 4) lack of the standard of stroke rehabilitation services; 5) non systematic and unreliable medical record that documented outcomes of stroke patients; 6) lack of outcome measures for monitoring and evaluation; 7) the routine services and information given were not responsive to patients' needs in terms of supporting their self-concept; 8) an inadequate system to follow up discharged patients, and 9) inconvenience of client transportation to rehabilitation for post stroke care. 10) Some patients were discharged without receiving an evaluation by the rehabilitation service. Some stroke patients that were evaluated by rehabilitation services did not meet the patient's needs.

In conclusion, some patients who were still left with partial disability handicapped needed rehabilitation for recovery. Rehabilitation could be done both in hospital as well as at home. However, most of patients have to go to hospital because of convenience in equipment and facilities. Some patients could not come for rehabilitation due to inconvenience in travel and patients' condition. The system that the government provided

did not cover all the service as well as not being sufficient in terms of systems, personnel and budget.

The problem also occurred in work details. There were many types of rehabilitation programs and can effectively be used if users can evaluate the program periodically not by the number of instruction or by the number of learners. Evaluation is done by means of methods of working towards the goal and the results derived from the development of rehabilitation in each period depending on each individual's goal. Application of the program does not realize on each individual's differences and needs which can not respond to patients' real requirement.

Continuity in rehabilitation is another problem that stroke patients lack. The outcome evaluation derived from the program is an important factor to measure the development of one's potential. The nurse leaves relatives to take care of the patients which lessen the full potential of caregivers because they are important and closest to patients. They know well the need and can respond to patients better than other persons. If patients return home without home modification which is suitable for illness or disability of the patients, they would have to survive in difficulty without the ability to recover.

In addition to physical goal, another factor is the mental goal since the illness is a chronic disease which takes a long time for rehabilitation. This causes lack in terms of motivation for rehabilitation in the long run. The reason why stroke patients can not recover completely may not be a physical problem but mainly a mental one.

Why should there be a new method of rehabilitation? This is a solution to the problem of using the existing program. The home based rehabilitation has a practical

process with direction and a clear goal with continuity focusing on answering and individuals' need both patients and caregivers. It gets rid of weakness and increases strength in bringing up the potential of caregivers in home-based rehabilitation. The newly developed program consists of suitable substance and form concentrating on responding to the needs of patients as well as individual relatives. There is periodical evaluation at every stage of performance both in short and long range goals.

The program handles knowledge, skill, for each problem including problems why patients and caregivers can not perform routine activity (ADL activities and ROM exercise) as well as bringing out ability and potential of patients and hidden potential in caregivers by making use of them in the rehabilitation program. The caregivers are the leader and evaluators of the results as well as solving problems with nurses being consult all the time by means of home visit and telephone visit. All the activities are performed under mental care and the development of belief in their own ability through 4 sources of Bandura's theory. It also gives information and knowledge leading to expectation based on such activities as well as gives empowerment to caregivers to the most potential of their performance which allows consistency in routine activity (ADL) with continuity in physical and psychological status for physical functional status. It also draws potential, natural resources and environment for use in home modification which is an essential factor for survival of patients with disability suitable for sufficient economy at present. Sufficiency can be applied to health and rehabilitation which could help save the country's budget as well. Patients and relatives are pleased with the idea and realize their own potential which can help patients and sometime can be extended to other patients as well.

Under the circumstances, an appropriate intervention program is desperately required to assist patients and caregivers in terms of life after strokes. There is a need for clinical research in order to develop and test the effectiveness of the intervention to facilitate the patients during post stroke rehabilitation. An ongoing that is knowledgeable about stroke recovery and behaviors change among post stroke patients is necessary to design effective interventions (William, & Dahl, 2002).

As a proposed rehabilitation program, it was expected in this study that the home-based rehabilitation program allowed for great flexibility so that patients could tailor their program of rehabilitation and followed individual schedules which best suited for patients who lacked transportation and specialized equipment. However, undergoing treatment at home gave patients the advantage of practicing skills and developing compensatory strategies in the context of their own living environment. Nurses in home-based rehabilitation program were sensitive to the variation in the caregivers' knowledge and need for information. Developing and using assessment instruments for physical and psychological competences evaluation could help the nurse, regardless of the setting, to determine especially which kind of information was important and to individualize the information provided for family caregivers. When teaching the patients and caregivers, assessing caregivers' needs was critical to providing individualized nursing rehabilitation care to post stroke patients and family. The program provided nursing attention on caregivers' requirement. If patients with stroke were to receive the best care possible in home, nurses enlisted their family caregiver as a partner in the care. Additionally, this program provided adequate and well planned continuity care for post stroke rehabilitation when the patients were discharged from hospital to home. The conventional program had

home modification to extended facilitation for the patients to restore their health in order to maintain a normal life in their own communities.

Home modification is a very important aspect to help the patients live in their community independently. Some beneficial equipment for rehabilitation was not available and cost got high in their community. The patients and caregivers can use natural resources provided in their area such as bamboo for one-side rail or double- side rail for stand and walk training, one-leg of jean trousers for rope and pulley with paralyzed hand grip for preventing shoulder joint spasticity. The patients and caregivers had competencies to modify many things in their communities for stroke rehabilitation such as: commode in room, rail from the second floor bed room to ground toilet, bed and chair for stroke bathing, fowler chair for meal preparation, Springer on the roof for heat control in summer, static bicycles for lower extremities training, tricycle for moving around, wheel for hand and elbow training, tires for leg exercise, bamboo pole for standing training, bamboo for shoulder exercise, shower for stroke bathing, mosquito net for stroke and many things available in their environment were used for stroke patients rehabilitation. Competencies of patients and caregiver were beneficial and feasible for stroke patients in their communities on using their own natural or available resources to home modification.

Continuity care was the important participants of the program especially on physical functional status measured by Barthel Index (ADL, IADL). Nurse had periodic evaluation in rehabilitation progression and booster in knowledge and skill to patients and caregivers and looked for the weak point and barrier of ADL activities, and ROM exercise. Caregivers took the important role on rehabilitation coaching, not only

assistance of the patients. Massage was intervened in the program in order to relaxation of shoulder spasticity and pain. Patients could exercise shoulder in full range of motion. And muscle exercise in paralyze side. Psychological evaluation was done to investigate the reason of un-continuously activity and exercise in the domain of self-efficacy.

In conclusion, the role of nursing in this program focused on interpretive, consoling, conserving and integrative aspects. An interpretive role referred to helping persons and their families understand the implications of stroke and to develop realistic rehabilitation goals. Consoling included emotional or psychological support and promoting self-efficacy. Conserving consisted of actions that maintained basic physical functional status and prevented complications. The integrative role entailed helping persons apply new skills and techniques under their own context in living environment.

Significance of the Study

Few intervention studies to improve a physical functional status in post stroke patients had been conducted by nurses (Nir et al., 2004). A serious gap in the literature is lack of studies conducted by nurses to evaluate the effects of a home based rehabilitation program on physical functional status in post stroke patients. This study may be the first step in the development of a home based nursing intervention to improve physical functional status in post stroke patients. Nurses approached the problem of improving and maintained a physical functional status in a stroke using many research approaches. It was possible that a nursing intervention could improve physical functional status and may also lower costs in home modification associated with stroke rehabilitation by decreasing hospital visits or preventing re-admissions to hospitals.

This study will propose a home-based rehabilitation program which could directly carry outcome as a nursing intervention in facilitating program for post stroke patients. This study would offer additional knowledge to Social Cognitive Theory (SCT) and self-efficacy as an integral influence in the adaptation and maintenance of behavioral change. It would confirm the intervention as a feasibility of program among post patients who lived with disability. It could also strengthen the knowledge of self-efficacy with respect to its implementation for post stroke rehabilitation. It could also serve on the national policy of health care services cost reduction with economic efficiency. The proposed home-based rehabilitation program focused on improvement of the patient's physical functional status by using their own competencies and low costs in home modification. Home modification by patients and caregivers was the main point in patients' environment to live with their impairment. According to the caregivers, there was a strategy to maximize patients and caregivers 'competencies. The post strokes patients who regained their self-efficacy would be able to actively function and return to their activity daily living. This outcome would serve the major target of the ninth National Economic and social Development Plan in Thailand, the development of human potential, and application of the own environmental resources which was considered during the time of economic efficiency.

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Theoretical Framework

Social Cognitive Theory (SCT) was originated by Bandura, (1977b), explains human behavior in terms of an interactive relationship between personal factor, the environmental events, and behavior(Lee, 2001). From this theoretical perspective, human functioning is viewed as the product of a dynamic interaction of personal, behavioral, and environmental influences. The foundation of Bandura's (1986) conception of reciprocal determinism, the view consisted of a) personal factors in the form of cognition, affectation, and biological events, b) behavior, and c) environmental influences create interactions that result in a triadic reciprocality.

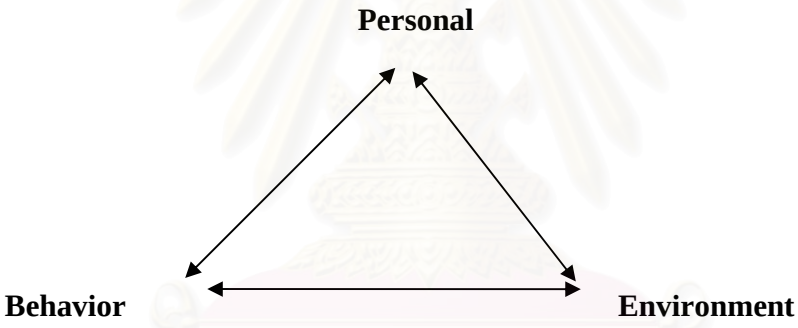

Figure 1.1 Reciprocal determinism (Bandura, 1997)

The reciprocal nature of the determinants of human functioning in social cognitive theory makes it possible for therapeutic and counseling efforts to be directed at personal, environmental, or behavioral factors. Strategies for increasing well-being can be aimed at improving emotional, cognitive, or motivational processes, increasing behavioral competencies, or altering the social conditions under which people live and work.

The social cognitive theory is rooted in a view of human agency in which individuals are agents proactively engaged in their own development and can make things happen by their actions. Key to this sense of agency is the fact that, among other personal factors, individuals possess self-beliefs that enable them to exercise a measure of control over their thoughts, feelings, and actions, that "what people think, believe, and feel affects how they behave" (Bandura, 1986).

Bandura provided a view of human behavior in which the beliefs that people have about themselves are critical elements in the exercise of control and personal agency. Thus, individuals are viewed both as products and as producers of their own environments and of their social systems. People work together on shared beliefs about their capabilities and common aspirations to better their lives.

Environments and social systems influence human behavior through psychological mechanisms of the self system. Hence, social cognitive theory posits that factors such as economic conditions, socioeconomic status, and educational and familial structures do not affect human behavior directly. Instead, they affect it to the degree that they influence people's aspirations, self-efficacy beliefs, personal standards, emotional states, and other self-regulatory influences.

People plan courses of action, anticipate the likely consequences of these actions, and set goals and challenges for themselves to motivate, guide and regulate their activities. People learn not only from their own experience but by observing the behaviors of others. This vicarious learning permits individuals to learn a novel behavior

without undergoing the trial and error process of performing it. In many situations, it keeps them from risking costly and potentially fatal mistakes.

In the home-based rehabilitation program researcher has the challenge of improving the ADL activities and ROM exercise and confidence of the post stroke patients. Using the social cognitive theory as a framework, researchers can conduct the program to improve their post stroke patients 'ADL activities and ROM exercise and to correct their self-beliefs and habits of thinking on activity and exercise (personal factors), improve their activity and exercise skills and self-regulatory practices (behavior), and provided knowledge, skill and alter the home structures that may modify to undermine patients success (environmental factors). The role of environmental factors plays in the development of human behavior and learning.

In conclusion, human functioning is explained in terms of a model of triadic reciprocality in which behavior, person and environmental events all operate as interacting determinants of each other. Thus intervention derived from the Social Cognitive Theory focus on the importance of the individual's ability to control their own behavior and how changes in the individual and/or the environment produce changes in behavior.

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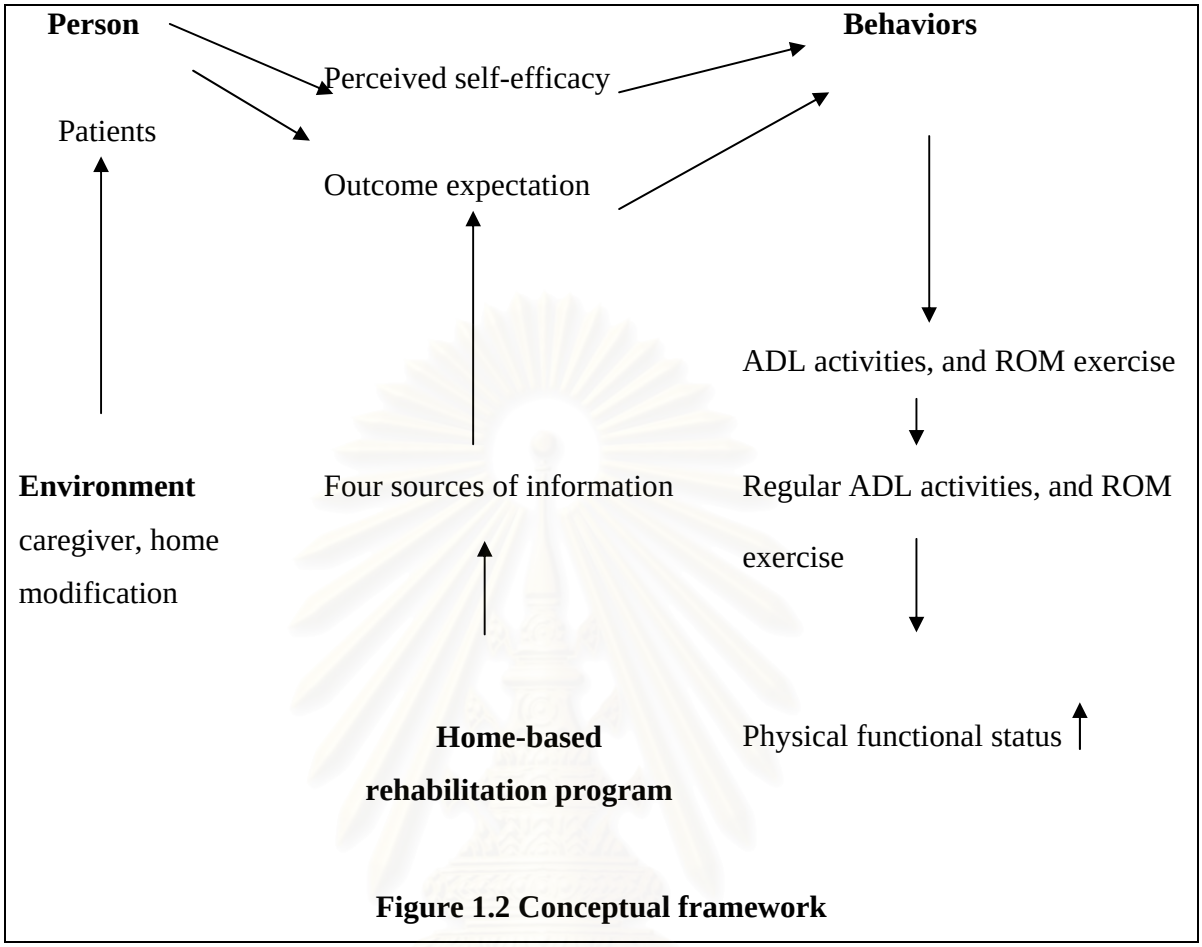

Figure 1.2 Conceptual framework

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Self-Efficacy Program in Home-Based Rehabilitation
1 performance accomplishment -Develop goals and ADL activities, ROM exercise prescriptions with patients. -Rehearse desired behavior, identify the activity that patients have competency. -Give individual ADL activities and ROM exercise training. -Use home visit, telephone visit and diary and to measure ADL activities and ROM exercise in duration intensity and frequency to provide feedback.
2 vicarious experience -Use investigator (as role model) and other patients who have succeed in ADL activities and ROM exercise who have embrace ADL activities and ROM exercise behavior. -Use CD or DVD of role models demonstrating ADL activities and ROM exercise behavior and problem solving. -Organize role models to start ADL activities and ROM exercise program.
3 verbal persuasion -Describe the physiological benefits of ADL activities and ROM exercise. -Provide verbal encouragement of progress. -Attribute accomplishments to each individual's own efforts. -Incorporate significant others into the intervention to increase support and reinforce behavior. -Reassure and rein enforcement that patients and caregiver is the key person to conduct ADL activities and ROM exercise
4 physiological feedback -Problem solve before physical discomforts related to ADL activities and ROM exercise might arise. -Assist in accurate interpretation of symptoms related to ADL activities and ROM exercise.(eg: pain, spasticity, fatique is normal when beginning to ADL activities and ROM exercise but improves over time). -Start problem solving to decrease anxiety and feeling of physical inefficacy. -Encourage patients and caregiver to express their positive and negative feeling. -Discuss relapse prevention strategies.
Figure 1.3 Strategic behaviors based on Information sources of perceived self-efficacy

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- **Perceived self-efficacy**
- **Outcome expectation**
- **Physical functional status**

Research Questions

1) What should be components of a home-based rehabilitation program in post stroke patients?
2) What is the effect of a home-based rehabilitation program in post stroke patients?

Research Hypotheses:

Participants receiving the home- based rehabilitation program will:

1. Experience a significant improvement in physical functional status more than the control group.
2. Experience a significant increase in perceived self-efficacy more than the control group.
3. Experience a significant increase in outcome expectation more than the control group.

Purpose of the study

1) To develop the home-based rehabilitation program for post stroke patients.
2) To examine the effect of home-based rehabilitation program.

Scope of the Study

The purpose of this research is to develop and test a home-based rehabilitation program in post stroke patients at Banphaeo Hospital. A quasi experimental pretest and a posttest design were developed for control group. Outcome variables are physical

functional status measured by Barthel index (ADL) and Chula ADL (IADL), perceived self-efficacy and outcome expectation.

Definition of Terms

1. Self-Efficacy Program in Home-based Rehabilitation refers to an arrangement of theory-based learning experiences for post stroke patients in order to improve perceived self-efficacy belief and outcome expectation that provided the effect on increase physical functional status Program component included: a)information on knowledge and skill: 1) stroke and its consequences, prevention, common stroke related problems and how to overcome these barriers, and management options; 2) goal setting for rehabilitation and discharge planning and self monitoring; 3) ADL rehabilitation, (positioning, transfers, gait facilitation, mobility, and activities of daily living tasks), ROM exercise and massage; 4) advice and application on home modification and community services, benefits, and allowances, including contact information for voluntary support services for caregivers with family support and external prompts; b) evaluation and feed back process both in physical and psychological domains; c)motivate on behavior change and maintenance by perceived self-efficacy and outcome expectation

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Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives (Bandura, 1997). Self-efficacy is defined as a person’s confidence about performing a particular activity, including confidence in overcoming the barriers to performing the behavior in question (Bandura, 1986).Perceived self-efficacy is in 2

domains: Perceived self-efficacy in ADL activities (Activity Daily Living activity) refers to self-care activities and ability to live independently. Ten domains of ADLs including bowel control, bladder control, self- care, ambulation, and stair climbing (Mayo, 2000) and Perceived self-efficacy in ROM exercise refers to perception of beliefs about whether one can produce exercise that all joints of upper and lower extremities which in the range of motion.

Outcome expectancy refers to a judgment of the likely consequences such behavior will produce or a person's estimate that a given behavior will lead to certain outcomes (Bandera, 1978). Outcome expectation is in 2 domains: outcome expectation in ADL activities (Activity Daily Living activity) refers to the judgment of benefit of self-care activities and ability to live independently and outcome expectation in ROM exercise refers to the judgment of benefit of exercise in upper and lower extremities which in the range of motion.

Physical functional status refer to the level of activities performed by an individual to realize needs of daily living in many aspects of life focusing on physical status. Level of performance is expected to correspond to normal expectation in the individual's nature, structure, and conditions. Measurement of physical functional status was used 2 instruments: 1) activity daily living (ADL) measured by Barthel Index, 2) instrumental activity daily living (IADL) measured by Chula ADL.

2. Post stroke patients: the patient who attends the neurology clinic of the out patient department of the Banphaeo Hospital Samuthsakorn Province. These patients were diagnosed by CT Scanning with cerebral ischemia, cerebral embolism or cerebral

hemorrhage like mild or moderate stroke by the physician, not more than one month after stroke onset.

3. Caregiver : the main person in patients‘ family (other than health, social, or voluntary care provider) helping with activities of daily living and advocating on behalf of the patients who have been admitted to Banphaeo Hospital. Family caregivers are spouses, parents, sibling, children and /or significant others who provide the majority of care for post stroke patients at home.

4. Routine care: standard care or usual care focused on the provision of medication and information about stroke was conducted by the registered nurse, physician and other health care providers at medical ward and community. The staff nurse also gave patients information concerning follow up treatment in order to maintain continuous treatment.

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CHAPTER II

LITERATURE REVIEW

The purpose of this chapter is to critically review the literature supporting the research and the theoretical framework. Scientific literature reviewed relates to: 1) perceived self-efficacy 2) outcome expectation; 3) concept analysis of physical functional status; 4) measurement of physical functional status; 5) theoretical framework; 6) home-based rehabilitation program for post stroke patients and related research and 7) role of the nurse in a home-based rehabilitation.

Perceived self-efficacy

Self-efficacy is stand in the core of the Social Cognitive Theory (Pajares, 2002) that Bandura proposed for the character of one's behavior, and it shows the possibilities of a person's belief that their behavior will produce results. Self-efficacy is a mediating, "person" variable in the triadic reciprocity model. Because individuals operate collectively as well as individually, self-efficacy is both a personal and a social construct that affects human functioning. Self-efficacy beliefs provide the foundation for human motivation, well-being, and personal accomplishment It was people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has, but with judgments of what one can do with whatever skills one possesses (Bandura, 1986).

Self-efficacy is defined as a person’s confidence about performing a particular activity, including confidence in overcoming the barriers to performing the behavior in question (Bandura,1986).

Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives (Encyclopedia of mental health, 1998). Similar to Bandura’s explanation (1997) that perceived self-efficacy refers to the beliefs about whether one can produce certain actions. Perceived self-efficacy is concerned with people's beliefs in their capabilities to exercise control over their own functioning and over events that affect their lives. Beliefs in personal efficacy affect life choices, level of motivation, quality of functioning, resilience to adversity and vulnerability to stress and depression.

As a construct within Social Cognitive Theory, self-efficacy attempts to explain how individual perceptions of ability affect behavior, level of motivation, thought patterns, and emotional reactions (Bandura, 1997). Self-efficacy is specific to a given situation and does not refer to a personality characteristic or trait. A person’s self-efficacy may vary depending on the specific task and context (Bandura, 1997).

Bandura (1997) explains the role of self-efficacy beliefs in human functioning that "people's level of motivation, affective states, and actions are based more on what they believe than on what is objectively true" For this reason, how people behave can often be better predicted by the beliefs they hold about their capabilities than by what they are actually capable of accomplishing, for these self-efficacy perceptions help determine what individuals do with the knowledge and skills they have. This helps

explain why people's behaviors are sometimes disjoined from their actual capabilities and why their behavior may differ widely even when they have similar knowledge and skills.

Belief and reality are seldom perfectly matched, and individuals are typically guided by their beliefs when they engage the world. As a consequence, people's accomplishments are generally better predicted by their self-efficacy beliefs than by their previous attainments, knowledge, or skills. And no amount of confidence or self-appreciation can produce success when requisite skills and knowledge are absent (Pajares , 2002).

Self-efficacy beliefs can enhance human accomplishment and well-being in countless ways. They influence the choices people make and the courses of action they pursue. Individuals tend to select tasks and activities in which they feel competent and confident and avoid those in which they do not. Self-efficacy beliefs also help determine how much effort people will expend on an activity, how long they will persevere when confronting obstacles, and how resilient they will be in the face of adverse situations. The higher the sense of efficacy, the greater the effort, persistence, and resilience. People with a strong sense of personal competence approach difficult tasks as challenges to be mastered rather than as threats to be avoided.

Self-efficacy beliefs also influence an individual's thought patterns and emotional reactions. High self-efficacy helps create feelings of serenity in approaching difficult tasks and activities. Conversely, people with low self-efficacy may believe that things are tougher than they really are, a belief that fosters anxiety, stress, depression, and a narrow vision of how best to solve a problem.

Individuals form their self-efficacy beliefs by interpreting information primarily from four sources: 1) performance accomplishments or enactive mastery experience or practicing and earlier experiences; 2) verbal persuasion or encouragement from others; 3) social modeling or vicarious experiences; and 4) physiological states or cues (information).

Performance accomplishment (Enactive mastery experience or Practicing and Earlier Experiences) refers to achieving mastery over a certain task through personal experience. Performance accomplishments gained through personal experience are the strongest powerful sources of self-efficacy since the person has developed and refined their skills through practice. Practicing is the most important source of self-efficacy because it is based on a person's own experiences (Shortridge- Baggett& van der Bijl, 1996).

Successful performance will enhance self-efficacy only if it is attributed to one's own skill and ability, rather than chance or external or temporary factors (Strecher, DeVellis, Becker, & Rosenstock, 1986). Individuals engage in tasks and activities, interpret the results of their actions, use the interpretations to develop beliefs about their capability to engage in subsequent tasks or activities, and act in concert with the beliefs created. Typically, outcomes interpreted as successful raise self-efficacy; those interpreted as failures lower it. And people who possess a low sense of efficacy often discount their successes rather than change their self-belief.

Vicarious experiences (**Social modeling)** is the second strategy used to enhance self-efficacy. This includes observing another's success, or by verbal persuasion or encouragement to perform a specific behavior (Bandura, 1997; McAuley & Jacobson,

1991; McAuley, 1992; McAuley, Lox, & Duncan, 1993). Vicarious experience is particularly powerful when observers see similarities in some attribute and then assume that the model's performance is diagnostic of their own capability. Seeing others perform successfully also is an important source of self-efficacy. Other persons can serve as examples (role models) and supply information about the degree of difficulty of a specific kind of behavior. The people serving as role models, however, should show similarity to the observer in those characteristics which are relevant to the issue. Observing others is a weaker source of self-efficacy than direct experiences, but can contribute to a person’s judgment of his or her own self-efficacy (Shortridge- Baggett& van der Bijl, 1996). This source is helping create self-efficacy beliefs when people are uncertain about their own abilities or when they have limited prior experience, they become more sensitive to it (Pajares, 2002).

Observing the successes of such modeis contributes to the observers' beliefs about their own capabilities ("If they can do it, so can I!"). Conversely, watching models with perceived similar attributes fail can undermine the observers' beliefs about their own capability to succeed. When people perceive the model's attributes as highly divergent from their own, the influence of vicarious experience is greatly minimized. People seek out models whose possess qualities they admire and capabilities to which they aspire. A significant model in one's life can help instill self-beliefs that will influence the course and direction that life will take.

Verbal persuasion refers to the use of strong verbal encouragement regarding the benefits of the behavior, and the progress the individual makes in achieving the behavior. Verbal persuasion is the most often used source of self-efficacy, because it is easy to use.

By giving instructions, suggestions advice, health care professionals try to convince persons that they can succeed in a difficult task. Of critical importance are credibility, expertise, trustworthiness, and prestige of the person doing the persuasion. Verbal attempts to convince people that they have the ability to perform a behavior are weaker than the previous two sources because they do not concern one's own experiences or an example of them. Persuasion can be good supplementation to other sources, however. If people are convinced of their abilities, they will be more inclined to persevere and will not give up easily (Shortridge- Baggett & van der Bijl, 1996).

These persuasions can involve exposure to the verbal judgments that others provide. Persuaders play an important part in the development of an individual's self-beliefs. Effective persuaders must cultivate people's beliefs in their capabilities while at the same time ensuring that the envisioned success is attainable. And, just as positive persuasions may work to encourage and empower, negative persuasions can work to defeat and weaken self-efficacy beliefs. In fact, it is usually easier to weaken self-efficacy beliefs through negative appraisals than to strengthen such beliefs through positive encouragement.

Physiological information (Self evaluation of physiological and emotional or affective states) Somatic and emotional states such as anxiety, stress, arousal, and mood states also provide information about efficacy beliefs. Physiological information includes feedback to the individual concerning how he/she is responding to the effects of the behavior; for example, reassurance that the elevated heart rate experienced during a vigorous physical activity is an expected and appropriate response (McAuley et al.,

1994). Information on the human body can also influence a person's estimation of the capability to show a specific behavior. In judging their own capacities persons choose information about their physiological and emotional situations. They experienced tension, anxiety, and depression as signs of personal deficiency. Stress can have a negative influence on self-efficacy. What persons believe about their illness and how they interpret their symptoms influences their self-efficacy to deal with the illness (Shortridge-Baggett& van der Bijl, 1996).

All these four sources of self-efficacy can be manipulated within a home-based rehabilitation program on dimensions of self-efficacy and are: 1) magnitude: from capability to perform simple tasks to complex tasks; 2) generality: expectation is generalized to other situation; and 3) strength: strong or weak expectation of mastery (Lee, 2001). All sources of self-efficacy also have a direct influence on post stroke patients who are receiving home-based rehabilitation.

People can gauge their degree of confidence by the emotional state they experience as they contemplate an action. Strong emotional reactions to a task provide cues about the anticipated success or failure of the outcome. When they experience negative thoughts and fears about their capabilities, those affective reactions can themselves lower self-efficacy perceptions and trigger additional stress and agitation that help ensure the inadequate performance they fear.

Individuals in a depressed mood lower their efficacy independent of task cues. One way to raise self-efficacy beliefs is to improve physical and emotional well-being and reduce negative emotional states. Because individuals have the capability to alter

their own thinking and feeling, enhanced self-efficacy beliefs can, in turn, powerfully influence the physiological states themselves. As Bandura (1997) has observed, people live in psychic environments that are primarily of their own making.

In conclusions, a certain hierarchy exists in the four information sources of self-efficacy. The first source, the repeated execution of the task, is the most powerful source because it is based on direct information: people immediately experience success or failure. The other three sources are all based on indirect information. Modeling, seeing other people demonstrating the desired behavior, can offer very important self-efficacy information but is not based on one's own experiences. Persuasion is a weaker source, especially when used by itself. This source usually is used to support the other sources. The last source, the physiological information, is the most concrete. People rely on their physical and emotional states to judge their capabilities (Bandura, 1997a; Schunk & Carbonari, 1984). Self-efficacy can be influenced either positively or negatively through performance accomplishments, vicarious experience, verbal persuasion, and psychological cues. The sources of self-efficacy information are not directly translated into judgments of competence. Individuals interpret the results of events, and these interpretations provide the information on which judgments are based. The types of information people attend to and use to make efficacy judgments, and the rules they employ for weighting and integrating them, form the basis for such interpretations. Thus, the selection, integration, interpretation, and recollection of information influence judgments of self-efficacy.

The level of confidence (self-efficacy) may have a greater impact on activity in post stroke patients. According to the Social Cognitive Theory and self-efficacy is a cognitive control system that influences the likelihood of performing behaviors particularly in two situations: when new behaviors are being learned, and when established behaviors are challenged. If, on the other hand, the performance of behaviors is more or less routine, then self-efficacy is thought to be less important (Bandura, 1997).

Self-efficacy has generated research in areas as diverse as medicine, athletics, media studies, business, social and political change, psychology, psychiatry, and education. In psychology, it has been the focus of studies on clinical problems such as phobias, depression, social skills, assertiveness, smoking behavior, exercise behavior and moral development. In general, researchers have established that self-efficacy beliefs and behavior changes and outcomes are highly correlated and that self-efficacy is an excellent predictor of behavior. Self-efficacy has proven to be a more consistent predictor of behavioral outcomes than have any other motivational constructs. It is not simply a matter of how capable one is, but of how capable one believes oneself to be (Graham & Weiner, 1996). Meta-analysis of research on the relationship between self-efficacy beliefs and achievement outcomes (Stajkovic & Luthans, 1998), found that researchers have been very successful in demonstrating that individuals' self-efficacy beliefs powerfully influence their attainments in diverse fields.

Measurement of Self-efficacy

The General Self-Efficacy Scale (GSE) was international scale for measuring perceived self- efficacy. The construct of Perceived Self-Efficacy reflects an optimistic

self-belief (Schwarzer, 1992). This is the belief that one can perform a novel or difficult tasks, or cope with adversity in various domains of human functioning. Perceived self-efficacy facilitates goal-setting, effort investment, persistence in face of barriers and recovery from setbacks. It can be regarded as a positive resistance resource factor. Ten items are designed to tap this construct. Each item refers to successful coping and implies an internal-stable attribution of success. Perceived self-efficacy is an operative construct, i.e., it is related to subsequent behavior and, therefore, is relevant for clinical practice and behavior change.

The scale was created to assess a general sense of perceived self-efficacy with the aim in mind to predict coping with daily hassles as well as adaptation after experiencing all kinds of stressful life events. The scale is designed for the general adult population, including adolescents. Persons below the age of 12 should not be tested. The scale is usually self-administered, as part of a more comprehensive questionnaire. The scale can be applied, for example, to patients before and after surgery to assess changes in quality of life. Also, it can be used in patients with stroke within a rehabilitation program. Criterion-related validity is documented in numerous correlation studies where positive coefficients were found with favorable emotions, dispositional optimism, and work satisfaction. Negative coefficients were found with depression, anxiety, stress, burnout, and health complaints. In studies with cardiac patients, their recovery over a half-year time period could be predicted by pre-surgery self-efficacy. It can be taken to predict adaptation after life changes, but it is also suitable as an indicator of quality of life at any point in time. As a general measure, it does not tap specific behavior change. Therefore, in most applications it is necessary to add a few items to cover the particular content of

the survey or intervention such as smoking cessation self-efficacy, or physical exercise self-efficacy (Schwarzer & Fuchs, 1996).

Outcome expectation

Bandera's (1978) use of the term outcome expectation refers to "a judgment of the likely consequences such behavior will produce". In his theory, Bandera (1977) theorized that behavior is based on two sources; outcome expectations and self-efficacy expectations. He defined outcome expectancy as a person's estimate that a given behavior will lead to certain outcomes whereas an efficacy expectation is the conviction that one can successfully execute the behavior required to produce the outcomes (TOJET, 2003). In the self-efficacy paradigm behavior change and maintenance are a function of outcome expectations and self-efficacy expectation (Bandura, 1986). An outcome expectation is the belief that a certain behavior will lead to a specific outcome. Self-efficacy expectation is a person's belief about how capable they are of performing the specific behavior that leads to the outcome or conviction that one can successfully execute the behavior required to produce the outcome. It is these perceptions and not necessarily actual ability that influence behavior(Elizabeth, 2002; Lee, 2001).

Because the outcomes we expect are themselves the result of the judgments of what we can accomplish, our outcome expectations are unlikely to contribute to predictions of behavior. Moreover, efficacy and outcome judgments are sometimes inconsistent. A high sense of efficacy may not result in behavior consistent with that belief, however, if the individual also believes that the outcome of engaging in that behavior will have undesired effects (Figure 2.3).

Recently, several researchers have addressed the possibility of applying social learning theory constructs to increase our understanding of problematic behavioral excesses. Bandura (1977, 1980, 1982) discusses two constructs, self-efficacy and outcome expectations, which are hypothesized to mediate treatment outcome and both of which are influenced by a number of cognitive, social, and environmental variables. Bandura hypothesizes that one can best predict behavior when information is available on both self-efficacy and outcome expectations. Bandera (1978) use of the term outcome expectation refers to "a judgement of the likely consequences such behavior will produce" and should be distinguished from concepts such as therapeutic expectancy or perceived credibility of a therapeutic procedure (Jacobson & Baucom, 1977).

Measurement of outcome expectation

Reeves (1997) explained that sources of outcome expectation are outcome feedback, task difficulty, social comparison and a person's personality. The study of Conn, 1998; Resnick et al., 2000; Schuster et al., 1995 measured perceived benefits to reflect the outcome expectations, so the term "outcome expectation " and "perceived benefits" have been used interchangeably. The scale includes 5 items on benefits if ADL activities, and ROM exercise and massage. There has been a strong emphasis in the lay literature suggesting that exercise increase strength and bone information. To complete the scale , the participants were asked to listen to a statement about exercise and to strongly agree (5), agree (4), neither agree nor disagree(3), disagree(2), or strongly disagree(1) with the stated outcome or benefit of ADL activities, ROM exercise and massage. The scale is scored by summing the numerical ratings for each response and dividing by the number of response. The scores rang from 1to 5: 1 indicative of low

outcome expectations for ADL activities, ROM exercise and massage, and 5 indicating strong outcome expectation.

Outcome expectation

self-efficacy		
	- +	**+ +**
	Protest **Grievance** **Social activism** **Milieu change**	**Productive engagement** **Aspiration** **Personal satisfaction**
	- -	**- +**
	Resignation **Apathy**	**Self- devaluation** **Despondency**

Figure 2.1 The effect of self-efficacy and outcome expectation

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

Concept analysis of physical functional status

The term ‘functional’ refers to (Webster,1993) the meanings of function, which are relevant to human as follow: 1) bodily or mental action: behavior, performance, 2) the action for which a person or thing is specially fitted, used or responsible or for which a thing exists: the activity appropriate to the nature or position of a person or thing, 3) the normal and specific contribution of any bodily part (as a tissue, organ, or system) to the economy of a living organism,4) the performance or fulfillment of a function, and 5) signify in common the acts, activity, or operations expected of a person or thing by virtue of his or its nature, structure, status or position.

The term of ‘status’ is described as ‘‘the condition’’, ‘‘the position or rank in relation to others’’, or ‘‘situation, the state of affairs’’ (Webster, 1993). In combining the definitions of ‘functional’ and ‘status’, ‘functional status’ can be viewed as the action or performance of any individual bodily part in relation to its normal expectation in the individual nature, structure, and conditions. Functional status often refers to the performance of social roles and valued activities (Patrick & Chiang, 2000). Historically, functional status assessment originated in rehabilitation practice for the purpose of determining capacity in relation to expected performance. Assessment scales developed to operationalize functional status were used primarily to assess activity performance of daily living to determine disability and facilitate clinical management. For example, the Katz model of functional assessment focuses on six basic activities of daily living (ADL), which are bathing, dressing, toileting, transferring, continence, and feeding (Katz & Stroud, 1989). Similar definitions are also given by Hawley (2001), as ‘‘the ability to perform the activity of daily living, such as eating, grooming, and toileting’’ and Knight

(2000) as ‘‘the actual performance of the activities and the level or degree of performance’’. More comprehensive definitions of functional status, Moinpour et al. (1988) defined functional status measurement as ‘‘any systematic attempt to measure the level at which a person is functioning in a variety of areas, such as physical health, quality of self-maintenance, quality of role activity, intellectual status, social activity, attitude toward the world and toward self, and emotional status’’. Wilkerson et al. (1992) noted that functional status encompasses different aspects of functioning including cognitive, social and psychological functioning. Keith (1994) described functional status as ‘‘physical function including activity restrictions and fitness, psychological function including affective and cognitive functioning, social function including limitations in usual roles or major activity, social integration, social contact, and intimacy’’

A similar definition of functional status was suggested by Leidy (1994) as ‘‘one’s ability to provide for the necessities of life and necessities include physical, psychological, social, and spiritual needs that are socially influenced and individually determined’’ (Leidy, 1994; Cohen & Marino, 2000) concluded that functional status encompasses physical, mental, social, occupational, and economic activities of an individual. In these definitions, functional status encompasses all domains of life, which may be more appropriate to be described as ‘‘health status’’ or a broader term, ‘‘quality of life’’. However, the current trend in defining functional status seems to include different domains of function rather than viewing function as limited to physical functioning (Knight, 2000).

In addition to different aspects of functioning, Leidy (1994) also suggested that there are four dimensions to functional status: functional capacity, performance, reserve,

and capacity utilization. Functional capacity is then defined as ‘‘an individual’s ‘maximum potential to perform’ those activities people do in the normal course of their lives to meet basic needs, fulfill usual roles, and maintain their health and well-being’’ (Leidy, 1994). This definition is similar to Abdel-Moty et al. (1992) definition of functional capacity evaluation as‘‘ an assessment process that translates findings of physical, physiological, and functional measure into performance potential for activities of daily living and/or work tasks’’. Both definitions emphasize the potential ability to accomplish tasks that are required for daily life. In contrast to functional capacity, functional performance is defined as ‘‘the physical, psychological, social, occupational, and spiritual ‘activities that people actually do’ in the normal course of their lives to meet basic needs’’ (Leidy, 1994,). These definitions are in accordance with the World Health Organization (2001) in which performance is defined as ‘‘what an individual does in real situations’’, whereas capacity is ‘‘what an individual can do in a standard situation’’. Leidy (1994) further defines functional reserve as ‘‘the difference between capacity and performance and refers to latent or dormant abilities that can be called upon in times of perceived need’’. Functional capacity utilization is ‘‘the extent to which capacity is called upon in the selected level of performance’’. Both functional reserve and functional capacity utilization add clarity to the understanding of functional status. Nevertheless, it is important to be aware of the difference between capacity and performance and address them while assessing individual functional status.

These attributes help to differentiate the concept of ‘functional status’ from other similar concepts. Three critical attributes of functional status, that appear consistently in the literature are:1) activities people do in the normal courses of their lives to meet basis

needs, fulfill usual roles, and maintain their health and well being, 2) the level of performance corresponds to its normal expectation in the individual nature, structure, and conditions. Distinguishing functional status from other closely related concepts are the terms ‘functional ability’ and ‘functional capacity’ are often used interchangeably with functional status. Knight (2000) defined ‘functional ability’ as ‘‘the capacity to perform a given function or activity’’ and Abdel-Moty et al. (1992) defined ‘functional capacity’ as ‘‘the performance potential for activities of daily living and/or work tasks’’. Based on the critical attributes identified, it is clear that functional status can be best differentiated from functional ability or functional capacity as the ‘‘actually performed versus ability to perform’’. Although Leidy (1994) suggested that functional status should include both performance and capacity, in most instances functional status was used to indicate performance only. The differences between ‘performance’ and ‘capacity’ are further evidenced by the World Health Organization (2001) definitions. The capacity represents ‘‘individual’s full ability to exact a task or an action, performance is what an individual does in his or her current. In addition to function, health status also includes disease, and symptoms. In its broadest scope, ‘‘health status encompasses all aspects of health, which includes functional status’’ (Keith, 1994).

Antecedents to functional status are: 1) a human ‘possesses ability’ to perform activities necessary for daily life, 2) there are ‘normal expectations’ regarding human activities, and 3) the necessities of human life can be realized through human activities.

The consequences of functional status are that functional status is maintained and or impaired. If functional status is maintained, one could actively participate in his/her

life. However, if functional status cannot be maintained, certain difficulties in activities of daily life will be experienced and may eventually lead to disability or handicap.

Empirical referents functional status can be best represented by actual activities performed in various aspects of life, which include personal care, ambulation, household activity, recreational activity, and community participation.

In conclusion, the definition of functional status can best be summarized as activities performed by an individual to realize needs of daily living in many aspects of life including physical, psychological, social, spiritual, intellectual, and roles .Level of performance is expected to correspond to normal expectation in the individual's nature, structure, and conditions. Physical functional status that used in this research focused on function of the body to perform an activity in daily living, not involved other aspects of life.

Measurement of Physical functional status

In many chronic illnesses such as osteoarthritis, diabetes and stroke in which cure is not approachable, maintaining or improving function has been a long-standing goal for patients, families, and clinicians. Functional status is a patient oriented meaningful health outcome, which concerns an individual's ability to perform daily functioning. Historically, functional status assessment originated in rehabilitation practice for the purpose of determining capacity in relation to expected performance. Assessment scales developed to measure functional status are used primarily to assess activity performance of daily living to determine disability and facilitate clinical management (Wang, 2004).

Katz and Stroud (1989) developed a model of functional assessment that focused on six basic activities of daily living (ADL), which are bathing, dressing, toileting, transferring, continence, and feeding. Similar definitions were also given by Hawley (2001), as ‘‘the ability to perform the activity of daily living, such as eating, grooming, and toileting’’ Hawley (2001, p.53) and Knight (2000) as ‘‘the actual performance of the activities and the level or degree of performance’’ (Hawley 2001) The definitions emphasize the potential ability to accomplish tasks that are required for daily life (Leidy, 1994 ; Abdel-Moty et al., 1992).

Therefore, interventions targeted upon improving functional capacity may not generate promising results while only performance measures are applied. One example is that exercise training that targets improving muscle strength may not be able to detect outcome changes in IADL such as shopping or walking. Although the physical capacity is improved, factors other than the capacity, such as environmental barriers, individual motivation, self-efficacy, and depression may play important roles in determining the degree of performance. Therefore, it is essential to measure both capacity and performance, while assessing functional status (Wang, 2004). Functional status can be best represented by actual activities performed in various aspects of life, which includes personal care, ambulation, household activity, recreational activity, and community participation.

Keith (1994) notes that functional status measures were first devised to measure performance for the determination of disability. Currently, functional status and functional ability have become important outcome measures for community living. The outcomes focus in the United States of America (USA) health care necessitates

identifying outcomes that are of critical importance, such as self-care and instrumental abilities, which are often included in functional status measures. The elderly, disabled, handicapped, technology-dependent and chronically mentally ill are growing in number and have a variety of functional deficits, many of which are poorly understood (Wang, 2004). Steffen & Mollinger (1995) used the Barthel Index of Function in a study on knee flexion contractures. The Barthel Index (Mahoney & Barthel, 1965) is a measure of physical disability and uses basic ADLs to indicate functional status.

In many nursing studies, ADLs continue to be used as indicators of functional ability (Morris et al. 1992; Kujawinski et al., 1993; Scanland & Emershaw, 1993; Grabbe et al., 1995; Hamilton & Lyon, 1995). Many studies in nursing which separate cognitive abilities from functional abilities use the Katz ADL scale (Katz & Lyerly, 1963) to measure a person's ability to perform five self-care activities: bathing, dressing, eating, walking and toileting.

Leidy (1994) noted the confusion in the literature regarding the term 'functional status'. She constructed a framework of functional status with four dimensions: capacity, performance, reserve and capacity utilization. Cognitive ability is included in the dimension of 'capacity' along with psychological, physical, social and spiritual capacities. Leidy (1994) explained that a person's capacity cannot be directly translated into performance, yet an individual's level of performance is constrained by his or her capacity. This is a useful proposition when beginning to consider the relationship between underlying capacities and the actual ability to perform a task.

Sufficient empirical evidence is present to indicate that functional status has both cognitive and instrumental components. The ability to perform instrumental activities of

daily living must include knowing what to do as these activities require choosing, attending, and problem solving. Thus physical functional status was measured by ADL and IADL using report by themselves or caregiver (self-reported measures).

In conclusion, physical functional status is an integral component of achieving and maintaining in dependence ADL and a major contributor to the overall health status and recovery by rehabilitation.

Theoretical Framework

The theoretical framework used to guide the behavioral change intervention of this study is derived from the Social Cognitive Theory (Bandura, 1997). Many conceptual models of health behavior now include Social Cognitive Theory and self-efficacy as an integral influence in the adoption and maintenance of behavioral change related to a wide array of health promotion behaviors (Ajzen, 1985; Bandura, 1997; Rosenstock, Strecher, & Becker, 1988). This theory explains human behavior in terms of reciprocal interactions between personal , behavioral, and environmental determinants(Bandura, 1997).In the other hand, Lee (2001) explains human behavior in term of an interactive relationship between personal factor, the environmental event, and behavior. Its basic premises are that behavior is determined by expectancies and incentives. One's belief in the ability to perform a behavior is the expectation of personal mastery and success which determines engaging in particular behavior. The personal factor is most important in influencing behavior change and is therefore the focus of behavioral interaction (Huijbregts, 2004). Outcome expectation is in personal factor that come from three major forms: 1) physical effects that accompany the behavior in physical pleasures and physical discomfort forms,

2) social reaction, positive and negative form, 3) self evaluation included positive and negative reaction to one's own behavior. Self-efficacy is the mediator between personal and behavior factor. Persons control and operate their behavior by conceptualize believe, thought, attitude, knowledge, motivation, previous experiences, self perception, health status, goal setting and outcome expectation. Self-efficacy is a key component to self care and disease management (Susan, 2003). To enhance ADL activities, and ROM exercise of post stroke patients in order to improve their ADL and IADL, focusing on personal factors, behavioral factor and environmental factors will be the most effective intervention.

According to the social cognitive view, people are neither driven by their inner forces nor automatically shaped and controlled by external stimuli. Human functioning is explained in terms of a model of triadic reciprocality in which behavior, person and environmental events all operate as interacting determinants of each other. Thus intervention derived from the Social Cognitive Theory focus on the importance of the individual's ability to control their own behavior and how changes in the individual and/or the environment produce changes in behavior.

The aim of home-based rehabilitation program is to enhance ADL activities, and ROM exercise of post stroke patients. The functional decline that is associated with other chronic diseases of aging has been shown to be linked with self-efficacy (Hellstrom, 2002). Self-efficacy and outcome expectations are the important concepts that influence activity and exercise. Self-efficacy is a central concept within the Social Cognitive Theory and involves individuals' degree of confidence that they can perform a particular behavior. Outcome expectation is an important construct for behavioral change as people

partly guide their actions by consequences of actions that they observe in others or the consequence that they experience themselves (Bandura, 1986). Outcome expectations together with self-efficacy explain and predict ADL activities, and ROM exercise behavior among post stroke patients (Resnick, Jenkins & Spellbring, 2000). In addition, self-monitoring and goal-setting can increase self-efficacy and outcome expectation assisting them to develop the capability, which can change their behaviors. To change their ADL activities , and ROM exercise behavior, person need to have self-efficacy and to build up their symbolic capabilities including self–regulation. With these symbolic capabilities and their knowledge, people can generate innovative courses of action (Bandura, 1986). Self-efficacy influences all aspects of behavior, including achievement, maintenance, decay and level of persistence and effort in the face of obstacles.

Nurse – patient interaction can help increase self-efficacy and outcome expectations for ADL activities, and ROM exercise. Bandura (1997) identified four sources of information that influence self-efficacy: enactive master experience, vicarious experience, verbal persuasion, and physiological state. These sources are emphasized in this study as enactive master experience is believed to be the most important factor promoting behavioral change as post stroke patients needs professional support to overcome their barriers in performing this behavior.

According to the theory, enactive master experience provides the most influential source of efficacy attainment because it is based on master experiences. The home-based rehabilitation program provided variety of experiences and skill for post stroke patients and provided the other patients ‘experiences on ADL activities, and ROM exercise and home modification (vicarious experiences or social modeling). Success raised efficacy

but failure is believed to negatively impact efficacy appraisal, especially if the failure occurs early in the course of the event and does reflect lack of effort or adverse external circumstances. Verbal persuasion is an important strategy for the patients because they are assured that they can perform the desired behavior, and this promotes their confidence to consistently engage in the behavior. Persons who are persuaded verbally that they possess the capabilities to master a given task are likely to mobilize greater sustained effort than they do when harboring self-doubts and dwelling on personal deficiencies (Bandura, 1986). Understanding the physiological state, such as pain, fear of falling, anxiety and depress, occurring post stroke period, is believed to enhance self-efficacy. Person rely partly on information from their physiological state in judging their capabilities. The strategies that eliminate emotional arousal to subjective threats, such as pain, heighten perceived self-efficacy with corresponding improvements in performance (Bandura, 1986). People who believe they can alleviate pain are likely to mobilize whatever ameliorative skills they have learned and to persevere in their attempts. Furthermore, outcome expectations are also believed to influence behavior. It is widely assumed that beliefs in personal determination of outcomes create a sense of efficacy and power (Bandura, 1986).

Goal-setting and self-monitoring increase self-efficacy to engage in ADL activities, and ROM exercise. Encouraging persons to set goals enhances their thinking about their capability to perform in the necessary activity. Self monitoring enhances self-efficacy; persons will learn how to engage in systematic self observation, which includes learning to anticipate and recognize the target behavior. Self monitoring is one of three sub functions of self regulation and therefore is one strategy to develop self regulation

capability (Bandura, 1986). Regarding self regulation, people constantly preside over their own behavior; they are in the best position to bring self influence to bear on their action as need be. In doing activities and exercising personal control, people adopt internal standards, monitor their actions, and use self incentives to mobilize and sustain their efforts until they accomplish what they set outcome expectation to do.

Moreover the patients ‘activity and exercise behavior are not only influenced by self regulation but also environmental regulation. Environmental factor such as home modification, family support and external prompts can enhance the patients ‘ability to expand their activity and exercise. Home modification using their own resources in their contexts is changing environmental factor suitable for disability of post stroke patients to perform ADL activities, and ROM exercise independently.

Nurse facilitate self-efficacy by increasing patients ‘ awareness of master experiences , through verbal persuasion and addressing problems associated with the patients ‘ physiological state. Self monitoring and goal-setting are strategies that help develop self regulation capability and increase self-efficacy. The resulting increased self-efficacy for ADL activities and ROM exercise is a predisposing condition that enables patients to feel able to develop their capabilities to perform exercise and activity. Nurses’ specification of the outcomes of exercise and activity can also increase patients ‘behavior. Furthermore in changing behavior, it is important that persons can maintain the levels of behaviors in their living with stroke; incentive motivators such as the perceived outcome can help persons to expand their efforts to maintain their exercise and activity levels. Environmental factors such as family support and external prompts and home modification can inspire patients ‘confidence to perform desired behavior. All

things considered, these activities comprise a behavior change intervention aimed at maintaining and increasing exercise and activity. An effective intervention for patients 'situation of post stroke as it is focused on three domains of personal, environmental and behavioral factors that are constantly changing over time. Post stroke patients will be appropriately encouraged to perform behavior by themselves and with the support from family and health care providers. Consequently ADL activities, and ROM exercise can improve regularity of the behavior and preventing progressive disability is an optimal goal in stroke rehabilitation of post stroke patients.

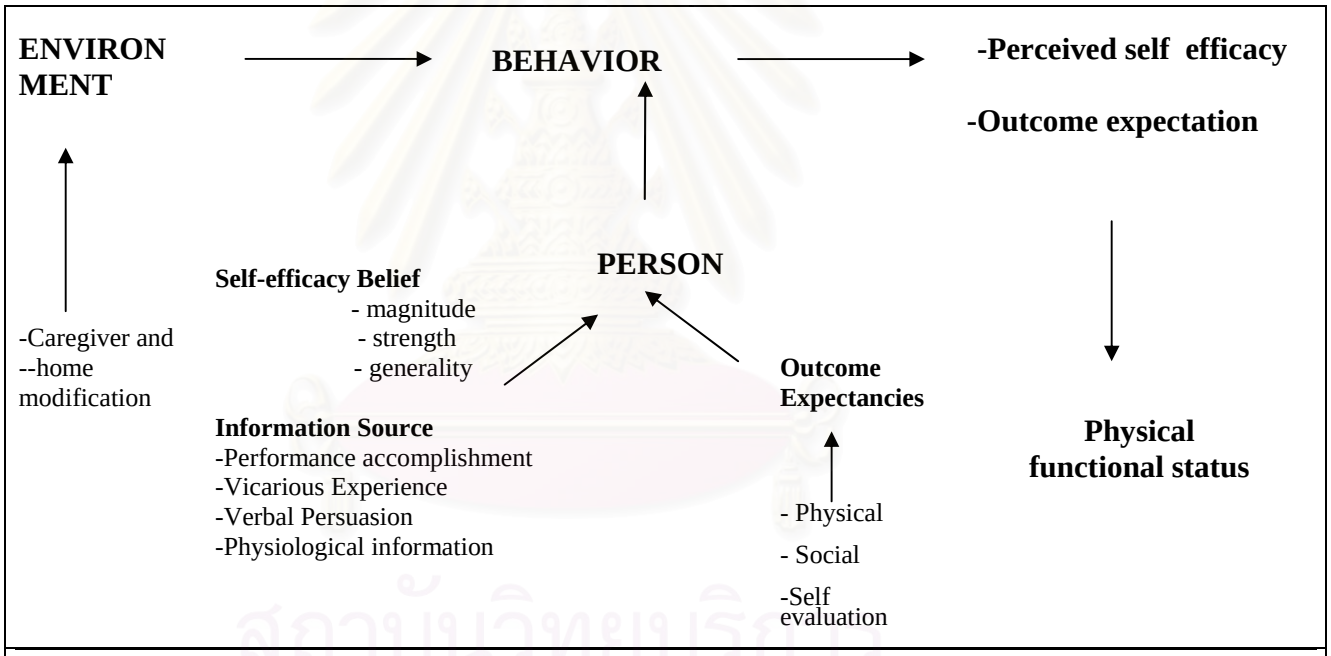

Figure 2.2 Theoretical Framework of the home-based rehabilitation program with conditional relationships between self-efficacy and outcome expectation.

Rehabilitation for post stroke patients

Although a majority of functional abilities may be restored soon after a stroke, recovery is an ongoing process (holistic-online, 2006). Estimating and understanding impairments and activity limitations following stroke should be a matter of high priority in health care, as stroke is the leading cause of activity limitations in adults, and not least for the reason that post stroke patient has increased during recent decades. In addition a growing elderly population will lead to an increased burden for the care of post stroke patients (Peltonen ,2003).

The consequences of declined physical functional status are impairment, disability, and handicap (WHO1980). Most motor and functional recovery occurs in the first three months after stroke (Duncan et al.1998;Jorgensen et al.,1999; Puangvarin,1991;Wade, Wood & Langton-Hewer,1985; Winkler, 1955; American Heart Association's, 2003). Physical functional status is an integral component of achieving and maintaining independence in activities of daily living (ADL) and major contributor to overall health. Rehabilitation is the way to improve physical functional status is to relearn skills that are lost when part of the brain is damaged. The goal of rehabilitation is to enable an individual who has experienced a stroke to reach the highest possible level of independence and be as productive as possible (American Heart Association's, 2006).

Stroke rehabilitation is a restorative learning process which seeks to hasten and maximize recovery from stroke by treating the disabilities (activities limitations) caused by the stroke and to prepare the post stroke patients to reintegrate as fully as possible into community life. Post-stroke rehabilitation involves physicians; rehabilitation nurses;

physical, occupational, recreational, speech-language, and vocational therapists; and mental health professionals. The responsibility of rehabilitation team was below:

Physicians have the primary responsibility for managing and coordinating the long-term care of stroke survivors, including recommending which rehabilitation programs will best address individual needs. Physicians are also responsible for caring for the stroke survivor's general health and providing guidance aimed at preventing a second stroke.

Neurologists and physiatrist usually lead acute-care stroke teams and direct patient care during hospitalization. They sometimes remain in charge of long-term rehabilitation. Physiatrist was specializing in physical medicine and rehabilitation.

Physical therapists specialize in treating disabilities related to motor and sensory impairments. They are trained in all aspects of anatomy and physiology related to normal function, with an emphasis on movement. They assess the stroke survivor's strength, endurance, range of motion, gait abnormalities, and sensory deficits to design individualized rehabilitation programs aimed at regaining control over motor functions.

Occupational therapists are concerned with improving motor and sensory abilities. They help survivors relearn skills needed for performing self-directed activities-occupations-such as personal grooming, preparing meals, and housecleaning. Occupational therapists also teach people how to develop compensatory strategies and how to change elements of their environment that limit activities of daily living.

Recreational therapists help people with a variety of disabilities to develop and use their leisure time to enhance their health, independence, and quality of life.

Speech-language pathologists help stroke survivors with aphasia relearn how to use language or develop alternative means of communication. They also help people improve their ability to swallow, and they work with patients to develop problem-solving and social skills needed to cope with the aftereffects of a stroke.

Vocational therapists: They can help people with residual disabilities identify vocational strengths and develop those strengths. They also can help identify potential employers, assist in specific job searches, and provide referrals to stroke vocational rehabilitation agencies.

Rehabilitation nurses: Nurses specializing in rehabilitation help survivors relearn basic activities of daily living. They also educate survivors about routine health care, and how to manage transfers between a bed and a wheelchair, and special needs for people with diabetes. Rehabilitation nurses also work with patients to reduce risk factors that may lead to a second stroke, and provide training for caregivers.

Because post stroke patients often have complex rehabilitation needs, progress and recovery are unique for each person. A strong theoretical concept should be effective in promoting physical functional status. To assist patients to develop and maintain behavior that promote physical functional status, effective strategies and techniques must be developed based on the strengths of existing theoretical models.

The National Institute of Neurological Disorders and Stroke (NINDS, 2005) conducted stroke research and clinical trials at its laboratories and clinics at the National Institutes of Health (NIH), and through grants to major medical institutions across the country. NINDS researchers studied the mechanisms of stroke risk factors and the

process of brain damage that results from stroke. Basic research has also focused on the genetics of stroke and stroke risk factors. Scientists are working to develop new and better ways to help the brain repair itself to restore important functions. New advances in imaging and rehabilitation have shown that the brain can compensate for function lost as a result of stroke.

Successful rehabilitation depends on: 1) amount of damage to the brain,2) skill on the part of the rehabilitation team 3) cooperation of family and friends. Caring family/friends can be one of the most important factors in rehabilitation 4) timing of rehabilitation – the earlier it begins the more likely survivors are to regain lost abilities and skills.

Types of Rehabilitation Programs

There are many programs for post stroke patients depends on health policy of each country. Generally, types of rehabilitation programs consist of four programs (http://www.stroke.org, 2006): 1) inpatient or hospital programs: in an acute care facility or a hospital rehabilitation Inpatient facilities may be freestanding or part of larger hospital complexes. Patients stay in the facility, usually for 2 to 3 weeks, and engage in a coordinated, intensive program of rehabilitation. Such programs often involve at least 3 hours of active therapy a day, 5 or 6 days a week. Inpatient facilities offer a comprehensive range of medical services, including full-time physician supervision and access to the full range of therapists specializing in post-stroke rehabilitation, 2) outpatient programs, out patients department rehabilitation. Outpatient facilities are often part of a larger hospital complex and provide access to physicians and the full range of therapists specializing in stroke rehabilitation. Patients typically spend several hours,

often 3 days each week, at the facility taking part in coordinated therapy sessions and return home at night. Comprehensive outpatient facilities frequently offer treatment programs as intense as those of inpatient facilities, but they also can offer less demanding regimens, depending on the patient's physical capacity, 3) long-term care facility with therapy and skilled nursing care (nursing home, hospice) inpatient and outpatient units. Skilled nursing facilities usually place a greater emphasis on rehabilitation, whereas traditional nursing homes emphasize residential care. In addition, fewer hours of therapy are offered compared to outpatient and inpatient rehabilitation units., and 4) home-based programs: undergoing treatment at home gives people the advantage of practicing skills and developing compensatory strategies in the context of their own living environment.

In some areas there were community resources in order to help rehabilitation to meet the goal. Community resources provided: 1) home health services, available from public health departments, hospital home care departments and private home health agencies, 2) volunteer: hot meals are delivered to the homes of people who cannot easily shop and cook, (or other companion services): a paid or volunteer companion makes regular visits or phone calls to a person with disabilities (http://www.stroke.org, 2005).There were many types of rehabilitation and each type had different benefit as shown in Appendix D.

Rehabilitation for post stroke patients in Thailand

Rehabilitation in Thailand consists of 1) in patient rehabilitation, 2) out patient rehabilitation, and 3) home based rehabilitation. Riewpibul, (2001) proposed rehabilitation

service on activity, person and setting of Thai post stroke patients as shown in figure 2.3.There are mostly inpatient rehabilitation in the hospital.

Activity	Person	Setting
Assessment of severity of stroke, disability. Goal setting for rehabilitation and discharge planning and evaluating outcome of rehabilitation.	Physiatrist	Hospital
Muscle and joint exercise with or without rehabilitation instrument.	Rehabilitation team	Hospital
Demonstrate and skill training in ADL rehabilitation, begin with basic skill to advance skill in real life.	Occupational therapist	Hospital
To design and provide instrument for living and home modification.	Occupational therapist	Hospital
Training for swallowing and communication	Occupational therapist Speech therapist	Hospital and home
Information on stroke and its consequences, prevention, and management options common stroke related problems and their prevention	Physician, professional nurse, and rehabilitation team	Hospital and home
Home visit for evaluation and continuing rehabilitation	Public health nurse and rehabilitation team	Home
Medication	Professional nurse and rehabilitation team	Hospital
Special investigation	Physician, nurse and rehabilitation team	Hospital
Routine nursing care	Professional nurse and rehabilitation team	Hospital

Figure 2.3 Current rehabilitation service of Thai post stroke patients (Riewpibul, 2001)

Although the Ministry of Public health's Policy on caring stroke patients runs in all hospitals in Thailand, there had been many problems in post stroke rehabilitation including:1) co-ordination and authority of the interdisciplinary team; 2) lack of home

visit services of a home health care system; 3) knowledge deficit of patient and care giver; 4) lack of the standard of stroke rehabilitation services; 5) non systematic and unreliable medical record that document outcomes of stroke patients; 6) lack of outcome measure for monitoring and evaluation; 7) the routine services and information given were not responsive to patients' needs in terms of supporting their self-concept; 8) an inadequate system to follow up discharged patients, 9) inconvenience of client transportation to rehabilitation for post stroke care, and 10) some patients are discharged without receiving an evaluation by the rehabilitation service. Some stroke patients that are evaluated by rehabilitation services do not meet the patient's needs.

(Narungsri et al., 2001;Tepdara et al., 2001; Riewpibul, 2001; Hirunchunha,1998).

Some areas in Thailand especially in Bangkok or similar large cities, post stroke patients can access rehabilitation services but still decline in functional abilities (Chantawatchai, 1999; Somnuk, 1997). Re-admission from complications one month after discharge was as high as 54% of post stroke patients who were admitted to the hospital (Tepdara et al., 2001). Both quantitative and action research studies (Hirunchunha, 1998) showed that even when stroke patients received out patient rehabilitation services, the outcomes are not favorable (Narungsri et al., 2001; Hirunchunha, 1998). Some patients are discharged without receiving an evaluation by the rehabilitation service. Some stroke patients that are evaluated by rehabilitation services do not meet the patient's needs. For example the patients had incorrect information about home environment which results in the unsuitable home modification (Narungsri et al., 2001).

Although stroke patients receive nursing visits after discharge from hospital to home, there are inadequate personal resources to provide a number of follow-up home visits needed for post stroke patients. Patients are uncertain about their own capabilities because the rehabilitation team does not provide a comprehensive evaluation before discharge. The rehabilitation team has not supported the patient's self-concepts and needs (Riewpibul, 2001). Because of these problems post stroke patients were left home with unsuitable rehabilitation care and advanced to permanent disability.

There are variable programs in rehabilitation in Thailand but the routine services and information given were not responsive to clients' needs in term of supporting their self-concept, inadequate system to follow up discharge patients; and the increasing need for home rehabilitation services because of the inconvenience of client transportation.

This is a very important point because we have many programs for post stroke patients and some post stroke patients can access those programs, but they still decline the physical functional status or can not live independently, that is because some rehabilitation team do not concern about patients' capability which is based on self-efficacy. From the empirical evidence mentioned earlier, nurses need to fulfill some ideas in the rehabilitation program and proposed a home based rehabilitation program which based on patients and care giver 's confidence to perform ADL activities and ROM exercise regularity. The patients are not aware that they are the most important person in the rehabilitation program that can do many things if they have the confidence in their own abilities.

The problem of rehabilitation in post stroke patients was not only system, services, patients and caregivers' knowledge but program management. The rehabilitation program

was used as a routine pattern not responsive to individual patients and caregivers' needs. The program was not flexibility so that patients can not tailor the program fit to their needs and their context. Some programs are not suited for people who lack transportation or require special therapist of rehabilitation-occupational, speech therapist. Post stroke patients are coming home more rapidly because of high occupying at the hospitals. There is not a long enough time periods for post stroke patients to make significant functional recovery and for caregivers to learn about stroke. .Most patients and caregiver received the information in the same method and strategies. The routine services and information given were not responsive to patients' needs in terms of supporting their self-concept. Because of health care system, stroke patients lack of home visit services in their own context and community. Thus health care provider did not know the real patients and caregivers 'problem. Sometimes caregiver that was taught many things at hospital is not the same person who take care the patients at home. There was no home modification which suited for each context.

Nurses are closely involved in helping stroke survivors manage personal care and other issues. In many area of Thailand nurses are the only one person who work in communities and go through patients' home. The rehabilitation program that was conducted under psychological aspect (Social Cognitive Theory) will get more advantage than routine approach. The program was responsive to patients and caregivers' needs in their own context. Home modification was included in program as well.

Home modification is very important aspect to help the patients live in their community independently. Some beneficial equipment for rehabilitation was not available and got high cost in their community. The patients and caregiver can use natural

resources provided in their area such as bamboo for one-side rail or double- side rail for stand and walk training, one-leg of jean trousers for rope and pulley with paralyzed hand grip for preventing shoulder joint spasticity. The patients and caregivers had competencies to modify many things in their communities for stroke rehabilitation such as: commode in room, rail from the second floor bed room to ground toilet, bed and chair for stroke bathing, fowler chair for meal preparation, Springer on the roof for heat control in summer, static bicycles for lower extremities training, tricycle for moving around, wheel for hand and elbow training, tires for leg exercise, bamboo pole for standing training, bamboo for shoulder exercise, shower for stroke bathing by own, mosquito net for stroke and many things that available in their environment were used for stroke patients rehabilitation. Competencies of patients and caregiver were beneficial and feasible for stroke patients in their communities on using their own natural or available resources to home modification.

Nurses specializing in rehabilitation help stroke patients and caregiver relearn how to carry out the basic activities of daily living by using the advantage of practicing skills and developing compensatory strategies. Rehabilitation nurses also work with the patients to reduce risk factors that may lead to a second stroke, and provide training for caregivers responsive to their physical and psychological needs in the context of their own living environment.

Home-based rehabilitation programs

Anderson, et al., (1997) studied randomized control trial in home-based rehabilitation. The study revealed the evidence of the home based rehabilitation had

benefit to stroke patients with mild to moderate disability. Patients with acute stroke with mild to moderate disability who receive home based rehabilitation have improved outcomes in terms of return in everyday activities, overall health and understanding about stroke than patients who receive traditional inpatient rehabilitation. There are many researches in other types of rehabilitation program that conducted in stroke rehabilitation

Home rehabilitation allows for great flexibility so that patients can tailor their program of rehabilitation and follow individual schedules. Stroke survivors may participate in an intensive level of therapy several hours per week or follow a less demanding regimen. These arrangements are often best suited for people who lack transportation or require treatment by only one type of rehabilitation therapist. The major disadvantage of home-based rehabilitation programs is the lack of specialized equipment. However, undergoing treatment at home gives people the advantage of practicing skills and developing compensatory strategies in the context of their own living environment.

Post stroke patients and their caregivers report various reactions including heightened anxiety, increased workload in the home and decreased social interactions with others (Robinson –Smith., 1999). The costs of stroke include relocating the household or the care giver, and modifying a home to accommodate that person, moving a person to a group facility or nursing home, visiting nurses, doctors, medical insurance, occupational and physical therapists, medications and special equipment .Other costs are non-medical assistance such as someone to clean, stay with the person, help with personal care and provide respite or day care.

Home-based rehabilitation is the process for helping post stroke patients to perform tasks at the patients' home to compensate for any residual disabilities. The goals of home-based rehabilitation are to help survivors living at home become as independent as possible and to attain the best possible quality of life. Better outcomes can be achieved for the patients and families if they do not have to go to the hospital. Post stroke rehabilitation must continue at home for no longer than three months after stroke onset. There's no place like home (Nancy & Myo, et al., 2000). Home-based rehabilitation provides continuity of care and helps patients and families avoid the burden of transportation costs and accessibility (Parker, 1992).

Home-based rehabilitation program for post stroke patients needs to have an educational component that promotes learning through interactive and practical problem solving. The program content should provide opportunities for ADL rehabilitation and ROM exercise. The program should be most beneficial and feasible for stroke patients on an ongoing basis.

Home-based rehabilitation programs provided the massage intervention for relieving pain and spasticity and increase ROM of shoulder in post stroke patients. In Thailand**,** caregivers have chosen complimentary and alternative medicine to assist family members recover from stroke disability. Six patterns of using alternative health care in stroke patients were : 1) Thai traditional massage, 2) foot massage, 3) herbal treatments, 4) acupuncture, 5) food supplement, 6) worship or using magic (Komjakraphan, 2000). In Canada a study repeated the use of alternative therapies in stroke rehabilitation population (Blackmer & Jefromova , 2002). The purpose of this study was to determine the percentage of stroke rehabilitation patients in Saskatchewan

using alternative therapies, and whether patients found these therapies effective in alleviating stroke-related symptoms. Of the 117 stroke rehabilitation patients interviewed, 31 (26.5%) used alternative therapy following their stroke. The 12 treatments included the following: acupuncture, massage, chiropractic manipulation, reflexology, magnetic therapy, hyperbaric oxygen, herbal supplements, vitamins (not including those prescribed by a physician), spiritual healers, reiki, chelation therapy and relaxation. In this study the massage program was provided by nurses.

Therapeutic massage is a rhythmic and sensitive form of touch that is assumed to have effects on symptom relief psychologically as well as physiologically. Vard, (2003) explored the study of therapeutics massage in 103 patients who received therapeutic massage at 197 different occasions. In average each massage took 20 minutes. Massage was given principally on a leg, a foot or a hand. The result showed that therapeutic massage was an excellent tool for communicating and becoming close to the patients. By using therapeutic massage it was possible to create relationships with patients the nurses otherwise might have difficulty getting in close contact with. The method was often used as a complement to pharmaceutical treatment of symptoms especially worry, pain and sleeplessness. Therapeutic massage enriches the content of nursing care (Complementary Treatments, 2003).

Thai Therapeutics massage is an interactive manipulation of the body using passive stretching and gentle pressure along energy lines. Practitioners apply pressure along meridian lines with their thumbs, hands, and feet to stimulate the movement of energy in the body, and in addition, move and stretch their clients to free muscular and joint tension. Designed to be both relaxing and stimulating, Thai therapeutics massage

improves flexibility, reduces tension**,** stimulates internal organs, and balances the body's energy system (Complementary Treatments, 2003).

Thai therapeutics massage is classified into two main types according to Supcharoen, (2001) based on the way of life:

1. The People Type which has been developed by people and spread all over the country. The simple way to recognize this type of massage is the observation of: the masseur postures, some are impolite, the client positions: various, including prone position, the manipulation: some are aggressive and harmful such as: kneading by elbow, knee, heel and sole, stretching and twisting of neck, limb, shoulder, hip, and vertebral column.

2. The Court Type which has been developed by courtiers, according to the successive with neighboring countries. In the ancient time the kings were the leaders of the troops. Trauma, dislocation, fracture, or wound from ancient different arts of fighting could be cured by herbs and massage. The massage must be also applied to the kings and their families. This type of massage is therefore recognized by, the Masseur Postures: polite and very polite, some derived from boxing and some are dramatic. The Client Position: no prone position. The Manipulations: no aggressive and no harmful. The masseur massages by hands only.

Service of massage may be divided into 5 levels. The first level includes massage for health including relieve and general bodily discomfort by improvement of general local blood circulation. The second level of massage is to cure or alleviate some illness such as spinal cord compression and disorders of the skeletal system, including fracture, dislocation, joint stiffness and some other bone and joint disorders, especially of the

elderly. Disorders of the muscular system**,** (muscular paralysis, muscular weakness), the urogenital system(infertility due to abnormal position of the uterus, dysfunction of pelvic diaphragm and impotence), miscellaneous, (increasing child intelligence) are also appropriate for the second level of massage. The third level is for physical imbalance such as improvement of the posture disorder and gait disorder by thorough corrections of several parts of the body. The fourth level is for sports to relieve muscular pain and fatigue, inflammation of muscles and tendon, dislocations, cramps, and other injured tissues. And the last is for beauty such as rejuvenate the complexion by special patterns of massage along with many other beauty aids.

Therapeutic massage is a laying-on-of-hands technique that touches the body and has the energy field around. It based on the theory that the following: disorders of the nervous system, i.e**.** stroke, numb (not from beriberi) which can be cured by means of human energy field extended beyond the skin and is abundant and flows in balanced patterns in health but is depleted and/or unbalanced in illness or injury. Practitioners restore health by sensing and adjusting such fields to restore health and promote well-being (Massageonline.com, 2004).

In summary, the benefits of Thai therapeutics massage for post stroke patients in rehabilitation at home are to improve shoulder joint stiffness, muscular paralysis and weakness and to decrease shoulder joint pain.

The Home-based rehabilitation programs provided the intervention which regains optimal physical functional ability of daily activities. This program continued rehabilitation at home. Nurses periodically evaluate post stroke patients, and short- and long-term goals are set. Stroke survivors often meet with nurses to review functional

progress, to confirm activities, and to discuss any problems. Evaluation of the program is to measure the physical functional status of post stroke patients by ADL/IADL and motor impairment. Shoulder pain and spasticity is a common complication after a stroke(Silverman, 2003). Home-based rehabilitation programs provided the massage intervention for relieving pain and spasticity and increase ROM of shoulder in post stroke patients as well.

Role of the nurse in a home-based rehabilitation

Many post stroke patients are left with impairments which preclude their resuming former activities. In addition to the visible effects of stroke, such as hemiplegia, social and psychological effects of stroke occur as well (Robinson –Smith, 1999). In general, changes in functioning that may be addressed in rehabilitation include the following: confusion or dementia; difficulty swallowing / eating; drooping on one side of the face / mouth; lack of balance / coordination; paralysis on one side of the body; inability to control one's bladder or bowels (incontinence); difficulty seeing or hearing clearly; speech impairment; and weakness of upper and/or lower extremities (Post-stroke Rehabilitation 2006).

A rehabilitation nurse is a nurse who coordinates the medical support needs of post stroke patients throughout rehabilitation (American Stroke Association, 2003 in Nursing Rehabilitation (2002) Rehabilitation nursing practice focuses on preparing people to return to the community to live the best quality of life possible. Nurses are positioned to play a pivotal role in the successful rehabilitation of post stroke patients. Education, assistance with problem solving, and follow up are particular strengths of

rehabilitation nurses. An ongoing assessment of the level of functioning within the caregiver-patient dyad by a nurse who is knowledgeable about stroke recovery and behaviors common among post stroke patients are necessary to design effective interventions (William, & Dahl, 2002).

Assessing caregiver needs is critical to providing individualized nursing rehabilitation care to post stroke patients and family (Harriton et al., 1996). When teaching the patients and caregivers, nurses need to be sensitive to the variation in the care giver knowledge and need for information. Developing and using assessment instruments can help the nurse, regardless of the setting, to determine especially which kind of information is important and to individualize the information provided for family caregivers. Caregivers require nursing attention. If patients with stroke are to receive the best care possible in home, nurses need to enlist their family caregiver as a partner in the care.

The nurse links patients and caregivers with available community services. Counseling, assessment and community support of the family as a whole is necessary to ensure successful rehabilitation and a return of the patients to their homes (Stroke, 1983).Targeting education to caregivers that includes information about functions of the brain and suggesting strategies for dealing with differing perceptions of reality might help reduce perception that insufficient information was given, and could provide substantive support. Information about commonly encountered behavioral change, underlying contributory factors, effective coping strategies, and support systems for the patients and caregivers should be included in discharge teaching plan (William, & Dahl, 2002). Nurses take an important role in the health care team for stroke patients not only in the

hospital but in the community also. Nurses specializing in rehabilitation help survivors relearn how to carry out basic activities of daily living. They also educate survivors about routine health care, such as how to follow a medication schedule, how to care for the skin, how to manage transfers between a bed and a wheelchair, and special needs for patients with co morbid conditions, such as diabetes. Rehabilitation nurses also work with post stroke patients to reduce risk factors that may lead to a second stroke (Post Stroke Rehabilitation, 2006).

A current role of the nurse is caring for stroke patients by coordinating the efforts of other team members and providing distinctive interventions. From a holistic perspective stroke involves all dimensions of a person: perception of one's self and change in health, altered activities or lifestyle patterns and reformulated relationship. The holistic nature of the stroke experience is needed for guidance in understanding its uniqueness, interpreting data and structuring care (Gibbon & Little, 1995).

From this holistic perspective, the pattern of response to stroke appears somewhat different (Brauer, & Pearson, 2001). The role of nursing focuses on interpretive, consoling, conserving and integrative aspects. An interpretive role refers to helping persons and their families understand the implications of stroke and to develop realistic goals. Consoling includes emotional support such as facilitating grieving and promoting hope. Conserving consists of actions that maintain basic physical functional status and prevent complications. The integrative role entails helping persons apply new skills and techniques to accomplish physical and social tasks.

In conclusion, nurses take an important role to help stroke patients to survive and prevent complications. Successful rehabilitation depends on skill on the part of the

rehabilitation team and co-operation of family and friends -caring family/friends can be one of the most important factors in rehabilitation; and timing of rehabilitation -the earlier it begins the more likely post stroke patients are to regain lost abilities and skills.

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CHAPTER III

METHODOLOGY

This chapter describes the methodological aspects including program development, research design and setting, population and sample, instrument, intervention protocols, data collection procedure and data analysis. Protection of the rights of human subject was also presented.

Program development

The home-based rehabilitation program was developed by researcher. The framework of this study was developed by a deductive approach technique that derived from Social Cognitive Theory (Bandura, 1997).Theory explains human behavior in term of an interactive relationship between personal factor, the environmental event, and behavior(Lee, 2001). Strategies for increasing well-being can be aimed at improving emotional, cognitive, or motivational processes, increasing behavioral competencies, or altering the social conditions under which people live and work. Environments and social systems influence human behavior through psychological mechanisms of the self system. Hence, social cognitive theory posits that factors such as economic conditions, socioeconomic status, and educational and familial structures do not affect human behavior directly. Instead, they affect it to the degree that they influence people's aspirations, self-efficacy beliefs, personal standards, emotional states, and other self-regulatory influences.

The above knowledge guided the researcher to develop the home-based rehabilitation program by mean interaction between person, behavior and environment. The program development was comprised of five phases 1) analyzing phase, 2) composing phase,3) validation phase, 4) implementation phase, and 5) evaluation phase.

1) Analyzing phase: the first phase of the program began with current situation analysis. This phase was an important step for the researcher to understand the patients (caregiver) and environment in the real situation and context with their own environmental living. Observation and interactive interviews was used to extract comprehensive information from the samples. During the interview, the samples were encouraged to feel free and take the interactive role as this would facilitate the free flow of need and problem information of post stroke rehabilitation. Participating in the need and problem assessment process made the samples understand individualized experience leading to effective planning, goal setting and problem solving.

2) Compose phase: the second step involved enhancing the integrative data after gathering information of current situation and theoretical knowledge. The current situation consisted of type of post stroke rehabilitation, role of rehabilitation team, role of nurse in rehabilitation team, and home-based rehabilitation program for post stroke patients, advantage and disadvantage of each program, program processing, program implementation and program evaluation. After the researcher could clearly identify the problem and establish the mean of the problem learning and solving the program planning was done.

3) Validation phase: the content protocols and instruments on patients knowledge and skill through the stroke rehabilitation were validated by inside and

outside 6 validators witch script VDO and book manual validator as well. Content validity index was done and correct as the commendation.

4) Implementation phase: the program was trial on the real post stroke patients and setting for feasibility and evaluation

5) Evaluation phase: the final step is the evaluation that includes: program content and protocol, program processing, program implementation, program evaluation and outcome evaluation. This process needs the patients' participant. If the desirable outcome can not be achieved, the whole process would be analyzed. The problematic that was an obstacle for the patient, setting and program would be identified and corrected. If the evaluation were positive, the process would be reinforced to continue the program implementation.

Therefore, the home-based rehabilitation program was feasible to patients and caregivers. These feasibilities include behavior change, self-efficacy, outcome expectation, home modification, massage, and economic efficiency. The physical functional status included perceived self-efficacy and outcome expectation continuing from factors that cause an achievement. These include, caregiver‘s competency, as well as regularity of ADL activities, and ROM exercise, self monitoring, self regulation and management skill and decision making that will help post stroke patients live independently.

Therefore, patients who participated in the home-based rehabilitation program and achieve the goal of program will have appropriate perceived self-efficacy and outcome expectation to enhance ADL activities, and ROM exercise, then physical functional status will be improved.

Research design

A quasi-experimental pretest-posttest control group design were used to test a home-based rehabilitation in post stroke patients, compared to a control group who received the routine care.

Research setting

All data collection for post stroke patients, was performed in Banphaeo Hospital Samuthsakorn Province, Thailand. Banphaeo Hospital was general hospital and public organization, supervised by the Ministry of Public Health with 180-300 beds. This institution was designated for medical patient comprising 80 beds separated into three wards (two regular wards and one private ward). This community was selected as a setting for this study because: 1) no home-based rehabilitation program was used in this area before, 2) this community had home health care service for routine care, 3) this area had separated house from the other, less contamination occurred 4) this area could be easily home modification, 5) this area depends on Banphaeo Hospital which easily screening all case of strokes by CT scan, 6) September,2006 - March,2007 this community had 482 families: 580 persons. They had 140 paralysis patients (116 strokes, 19 paraplegias, 5 tetraplegia). The study was carried out over seven - month period (August 2006 to February 2007).

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Population and Sample

Population and sample of the study

The target population of this study was post stroke patients who lived with caregivers and attended the medical clinic of the out patient department of Banphaeo Hospital, Samuthsakorn Province, Thailand, and reside within 70 kilometers distance from the hospital. These patients were screening by CT scan and diagnosed with mild or moderate stroke by the physician, with a stroke interval less than one month prior to study entry, and met the inclusion criteria for the study.

Inclusion criteria

The sample of post stroke patients was selected by eligible criteria as following:

1. First stroke which diagnosed by CT scan and admitted to hospital. The stroke patients will have no paralysis before study entry.

2. Stroke interval less than 1 month prior to study entry. The stroke patients had no long term of paralysis before study entry.

3. Severity (mild or moderate stroke measured by National Institutes of Health Stroke Scale (NIHSS) with score 0-16. The severed stroke patients can not get along with the program through the study process and can learn nothing in the home-based rehabilitation program because of severe cognitive impairment. They can not easily communicate through tracheostomy or endotracheal tube.

4. Lack of paralysis or other impairment before stroke onset. To differentiate cause of paralysis from stroke attack only.

5. Normal mental status measured by Chula Mental Test (CMT) with a minimum score of 15.The stroke patients with mental illness can learn nothing in the program.

6. Available for follow-up at their home (including by phone) at Banphaeo, Samuthsakorn Province for three months for continuing program and follow up.

7. Being stayed with the main care giver for helping stroke patients for continuing program and take care of them through study program.

Exclusion criteria

Exclusion criteria of post stroke patients are: a) CMT score<4 and NIHSS score >16, b) serious psychiatric condition such as severe depression or schizophrenia, c) excessive frailty (cannot attend to instructions, stay awake or engage in functional activities), d) unstable condition in every stage of disease, e) severe pain in any joint of the affected extremity that could limit ability to participate in the prescribed program, f) current participation in other pharmacological or physical intervention studies, and g) received anti-spasticity drugs (parenteral and oral) within the past three months.

Care giver inclusion & exclusion criteria

All care givers will be included in the study unless they are: 1) being stayed temporally or not the main care giver ; 2) the care giver is under 12 years of age; and 3) if the care giver could not administrate patient ‘s drug and care at patients ‘home.

Sample recruitment procedure

To recruit the sample, the researcher determines whether or not the patients met the inclusion criteria, no earlier than 5 days after the stroke and no later than 30 days post stroke or day of discharge. The researcher screened the patients and care giver using the

inclusion and exclusion criteria. If they met the inclusion criteria, the researcher explained the purpose of the study and invited them to participate. The researcher advised the patients that participation in this study was optional and that confidentiality and anonymity was maintained.

After the patients agreed to participate in the study and signed the consent forms, the preliminary interview was completed using the demographic questionnaire. Both control and experimental groups received routine care or routine education by the hospital nursing staff or other health care providers. Each qualified participant will be randomly assigned to the experimental or control group by using the sealed-envelop with no replacement technique. The researcher conducted the intervention with the participants in experimental group. The experimental group received the intervention on the day after discharged from the hospital to their home.

Sample size

A power analysis was calculated to obtain a large effect size (0.80). This study used two ways repeated measures, one-tailed independent t-test with an alpha=0.05 to assess differences between groups over three months. Calculations of the sample size were done according to Cohen (1992),who proposed 0.80 as an estimated large effect size(small=0.2, medium=0.5).Using Cohen's table (Cohen,1992,p.158) for analysis of variance and covariance, and effect size of 0.8, power of 80% and an alpha level of 0.05, the possible size sample was 26 in each group. The sample size was 30 participants including 10 % of attrition rate in each group.

Table 3.1 Summary of the samples in the study.

Hemorrhagic stroke						
Control group				**Experimental group**		
NO*	SEX	AGE	NIHSS**	SEX	AGE	NIHSS
1	male	52	2	female	56	2
2	male	54	2	male	42	2
3	female	65	1	male	61	1
4	male	53	1	male	62	1
5	male	69	1	female	78	1

Ischemic stroke						
Control group				**Experimental group**		
NO	SEX	**AGE**	**NIHSS**	SEX	**AGE**	**NIHSS**
1	female	41	1	male	42	1
2	male	53	1	female	54	1
3	male	64	1	male	56	1
4	female	65	1	male	56	1
5	male	68	1	male	57	1
6	male	69	1	female	59	1
7	male	70	1	female	62	1
8	male	71	1	female	64	1
9	male	74	1	female	71	1
10	male	76	1	male	74	1
11	female	77	1	female	75	1
12	male	81	1	male	76	1
13	female	81	1	male	78	1
14	male	86	1	male	80	1
15	female	94	1	male	84	1
16	female	55	2	male	50	2
17	male	58	2	female	53	2
18	female	63	2	male	55	2
19	female	64	2	female	58	2
20	male	66	2	female	67	2
21	male	69	2	female	67	2
22	male	71	2	female	69	2
23	male	73	2	female	74	2
24	female	76	2	male	74	2
25	female	88	2	male	83	2

* NO= amount of patients

**NIHSS =National Institute of Health Stroke Scale (severity of stroke)

Instruments

1. Screening tests.

1.1 **Demographic Questionnaire** (DQ). The DQ consisted of questions about personal information (e.g. age, gender, marital status, education, occupation, financial status, family support), history of illness (e.g. length of hospital stay, onset to admission, type of stroke, severity, side of hemi paralysis, risk factors and operation before stroke, co-morbidity) and information about family caregivers' age, gender, marital status, education, relationship to the patients, care giving duration, financial support, and having a person to assist. Information also was recorded from the hospital medical record. Demographic questionnaire was administered by the researcher reading the questions and recording the participants' response. (Appendix C)

1.2 **Chula Mental Test (CMT)** This test was applied from Mini-Mental State Examination (MMSE)(Folstein, 1975; Rudd, Wolfe, Tilling, & Beech, 1997) by Jittapunkul, (2004) on Thai elders(Appendix C) CMT was evaluated cognitive function. It had eleven domains including orientation to time and place, registration of words, attention, calculation, recall, language, and visual construction (Kelly-Hayes, 2004). The time to evaluate was less than ten minutes. The top score was 19 that indicated normal cognitive function and the lowest score was 0 that indicated severe cognitive impairment. Cognitive impairment was defined as a score lower than 15. Coma and semi-coma patient had got 0 score

The construct validity was claimed as the standard for Thai version that administered on Thai Elders (Jittapunkul S,2004). The reliability of CMT was tested on 10 post stroke patients at home. The Conbarch's alpha coefficient of reliability was calculated

on the trial data and revealed 0.94. This reliability was acceptable when compared to the 0.7-0.9 reliability of the original study conducted by Jittapunkul, (2004). The internal consistency of CMT was estimated by alpha coefficients of 0.82 using the 60 samples of this study. The alpha value was above .70, it was sufficient evidence for supporting the internal consistency of the instrument (LoBiondo-Wood & Haber, 2002).

1.3 National Institutes of Health Stroke Scale (NIHSS) (http://www.strokecenter.org/trials/scales/nihss.html). Applied for Thai people by Rehabilitation Department ,Chulalongkorn Hospital(2001). NIHSS (Appendix C) consisted of 11- item assessment of neurological function included level of consciousness, language, neglect, visual-field loss, extra ocular movements, motor strength, ataxia, dysarthria, and sensory loss. NIHSS had scores ranging from zero to 38, with 38 indicating patient is fully impaired (Kelly-Hayes, 2004). Adam et al, (1999) presented score in three levels; less than 6 (good recovery), 6-16 (moderate recovery), and more than 16 (poor prognosis). The construct validity was accepted as standard for Thai version conducted by The Thai Red Cross Society, Rehabilitation Department ,Chulalongkorn Hospital(2001) on post stroke patient at home for six years(2001-2007).

The reliability of NIHSS was tested on 10 trial post stroke patients at home. The Conbarch's alpha coefficient of reliability was 0.83. That internal consistency was higher than using the 60 samples of this study estimated by alpha coefficient of 0.73. But it was sufficient evidence for supporting the internal consistency of the instrument (LoBiondo-Wood & Haber , 2002)(Appendix C).

2. Outcome variable instruments

2.1 Perceived Self-efficacy in Stroke for ADL activities, and ROM exercise Scales (PSSARS)

PSSARS (Appendix C) was developed by the researcher from the scale of Resnick and Jenkins (2000) and Shortridge-Baggett& van der Biji (1996). Resnick (1999, 2000) developed self-efficacy for Exercise and Functional Activity Scale as a self-efficacy barrier to exercise measure. This instrument consisting of 9 items, was a semantic differential scale with scores ranging from 0 (no confidence) to 10 (total confidence). This score indicated the strength of self- efficacy for exercise and functional activities. The reliability and validity testing of this tool were done with older adults in USA. The sample was 187 residents age 60 or older. An alpha coefficient of 0.92 was sufficient evidence for internal consistency (Nunnally & Bernstein, 1994).

Shortridge-Baggett & van der Biji (1996) constructed the measurement issues of self-efficacy when applied to the behavioral domain of diabetes management. Perceived self-efficacy was defined as “people’s judgment of their capabilities to organize and execute courses of action required to attain designated types of performances. It was concerned not with the skills one has but with judgments of one can do with whatever skills one possesses” (Lenz.,2002). They developed a diabetes management self- efficacy scale measuring the strength dimension of self- efficacy among people with type 2 diabetes management behaviors, such as checking blood sugar (van der Biji, van Poelgeest, & Shortridge-Baggett, 1999). The measure of self-efficacy strength was used a 5-point semantically anchored Likert-scale (5=yes, definitely; 4=probably yes;3=maybe yes or may be no; 2=probably no; 1=no, definitely not) measuring the degree of confidence.

This studied instrument addressed confidence in functional activity in daily living (ADL), ROM exercise and massage that were specific to components of the HBRP (Home-based rehabilitation program). The scale had five numbers ranging from very little confidence to very much confidence (one to five).The content validity and level of confidence was submitted to six clinical experts, one physician, one physical therapist and four nurses specialist in self-efficacy, elders, and stroke patients. The content validity index (CVI) was used to determine the extent of agreement between experts, with a CVI of 0.80 achieved (Waltz, Strickland, & Lentz, 1991).

The Thai version of PSSARS were created by the researcher of present study via translation and applied from Harnirattisai, (2003) study which was conducted on 63 Thai older adults after knee replacement surgery. This research was taken in two large hospitals in Thailand from July, 2002 to March, 2003. It used a longitudinal quasi-interventional design with a pre-posttest control group and qualitative component. Findings revealed evidence for internal consistency of the instruments with Cronbach's alpha coefficient of 0.84 for the Self-efficacy for Exercise Scale, and 0.86 for Self-efficacy for Functional Activities Scale.

The content validity index (CVI) of present study was 0.90. The internal consistency was established with ten post stroke patients in Banphaeo community, Samuthsakorn Province, Thailand. The reliability (Cronbach's alpha coefficient) for trial ten stroke samples was 0.90. And the PSSARS of using 60 stroke samples of this study was estimated by alpha coefficients of 0.95.

2.2 Outcome Expectation for ADL activities, and ROM exercise Scale (OEARS)

OEARS (Appendix C) developed by (Resnick, 1999) was used in this study. Resnick, et al., (2000) developed this scale based on early studies regarding the outcome expectations and benefits related to exercise in adults done by Schrist, Walker, and Pender (1987). The study consisted of qualitative and quantitative studies that identified the specific benefits of exercise for older adults including five items on physical benefits, and four items on mental health benefits. Content validity of this instrument was established by Resnick, et al. (2000) by initially reviewing the items with a group of four researchers who were familiar with the issues related to motivation and exercise adherence in older persons. Afterward, the instrument was examined for reliability and validity with 175 older adults living in the United States. The results revealed that there was sufficient evidence for internal consistency of this instrument with an alpha coefficient of 0.89 (Resnick et al., 2000).

The Thai version of OEARS were created by the researcher of present study via translation and applied from Harnirattisai, (2003) which was longitudinal quasi-interventional design with a pre-posttest control group and qualitative component. The findings revealed evidence for internal consistency of the instruments with Cronbach's alpha coefficient of 0.70 for Outcome Expectation for Exercise Scale, and 0.86 for Outcome Expectation for Functional Activities Scale. In present study the four validators agreed with the items identified and proposed some wording changes for better understanding of older adults. The content validity index (CVI) was 0.92. The reliability (Cronbach's alpha coefficient) for ten post stroke samples in this research was 0.90. The

OEARS of using 60 post stroke samples of this study was estimated by alpha coefficients of 0.95.

It is 5-point scale measure with choices ranging from strongly agree (5), agree (4), neither agree nor disagree (3), disagree(2), and strongly disagree(1) with stated outcome or benefit of functional activity, ROM exercise and massage. Participants are asked to rate the degree of expectation to performed activities of daily living will improve their strength and abilities. They are asked how strongly they believed each behavior would result in the stated outcome on a scale of 1 to 5 with 1 indicate of low outcome expectations for functional activity, ROM exercise and massage and 5 indicate strong outcome expectations for functional activity, ROM exercise and massage Scoring is done by summing the response and dividing by the number of items. The time taken to complete OEARS is 15 minutes.

2.3. Physical functional status measurement

Physical functional status measurement consists of two instruments: Barthel ADL Index and Chula ADL Index.

2.3.1 Barthel ADL Index (BI): BI (Appendix C) was used to assess change in functional dependence before and after treatment and to indicate the amount of nursing care needed. It was most widely used to measure ADL in stroke research(Mayo, 2000). Ten domains of ADLs including bowel control, bladder control, self- care, ambulation, and stair climbing, were assessed on four point scale. Each self- care item is rated by determining whether the patients can perform the activity independently, with assistance or supervision, or not at all. Items carry variable 0-1-2- 3 weights. Zero indicated total dependence and 12+ indicated complete independence. The scores reflect the amount of assistance required;

0-4 indicated total dependent, 5-8 indicated severe dependence, 9-11 indicated moderately severe dependent and 12+ indicated mildly severe dependence (complete independence) consideration of discharging home. The construct validity was claimed as the standard for Thai version that administered on Thai Elders (Jittapunkul, 2004). The reliability (Cronbach's Alpha) for all the samples (60) was 0.94.

2.3.2 Chula ADL Index Chula ADL Index (IADL=instrumental activities of daily living)(Appendix C)was the one of self-reported measures have been developed primarily to assess health status and service needs. The IADL was developed by Lawton and Brody (1969) to assess community dwelling applicants for long term care and for institutional residents. The IADL captures a more complex range of activities necessary for independently functioning in the community such as housework, shopping, meal preparation, telephone use and financial management.

In Thailand, The Chula ADL index (CAI) recently developed by Jitapunkul, Kamolratana, and Ebrahim (1994) and was used in Thai people. In their study, activities of daily living of 703 Thai elderly people (aged more than 60 years old) were asked to rate how they performed their five IADL during the past 2 weeks. These activities are walking outdoor, cooking, using public transportation, using money, and heavy housework. The score of each item is rated unequally, depending on its important for living. The reliability (Cronbach's Alpha) for all the samples (60) was 0.94 in the present study.

2.3.3 The Physical Functional Status Diary (PFSD)

The Physical Functional Status Diary (PFSD) (Appendix C) was self report measures. The record kept by the participants of their participation in ADL rehabilitation and ROM exercise and massage. The PFSD was developed by the researcher, and adapted

from the activity checklist by (Jenkins, 1985) for myocardial patients in cardiac rehabilitation , and Harnirattisai, (2003). The PFSD designed by grouping the activities into ADL rehabilitation and ROM exercise and massage. To the right side of each activity were columns allowing patients to record a response of “yes or no” “frequency” (time/day),”intensity” (repetitions/time), and “duration” (minutes/time) of each activity, and level of assistance needed to perform the activity. Patients or care giver recorded the actual activity they had done, the frequency, intensity and duration, and barriers of doing the ADL rehabilitation and ROM exercise in each day.

Activities of daily living consisted of bathing, toileting, dressing, transferring from bed to chair, and moving from sitting to standing. Scoring varied depending on the levels of assistance; 1=required assistive person and device, 2= required assistive person, 3= independent with assistive device, and 4= completely independent.

The researcher scores the activity participation based on the following criteria; 1 = met the criteria and 0 = do not meet the criteria. Scoring 1 for exercise activity meant that the participant completed the exercise activity according to the standard set with at least 10 repetitions per time, two times per day. Scores were calculated by summing of the level of each activity resulted in the ADL score.

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Table 3.2 Summary of the Instruments of the study

Instrument	Ideology	Definitions	Scale	Reliability
				-
Demographic data	Patient and care giver general characteristics	Information of the personal history illness, and socioeconomic status of patient and care giver	General Information questionnaire	
Chula Mental test(CMT)	Mental Status	Information regarding cognitive functior related to stroke	11 domains,13- item Scale 0-1 Score <15=cognitive impairment	Alpha = 0.82
National Institutes of Health Stroke Scale (NIHSS)	Severity of stroke	Information regarding neurological function	11- item Scale0-1-2-3-4-5 unequal in each item Scores range0 - 38 Score<6 =good recovery Score>16=poor prognosis	Alpha = 0.83
Barthel ADL Index (BI) (BI) (Barthel DW 1965, Jittapunkul,200 4)	Functional status in daily living.	Information regarding the amount of assistance required. The patients can perform the activity independently, with assistance or supervision, or not at all.	10- domains Scale 0-1-2- 3 unequal 0-4 = total dependence 5-8 = severe dependence 9-11= moderately severe dependence 12+ = complete independence	Alpha = 0.94
Chula ADL Index (CAI) Jittapunkul,2004	independent ly functioning for living.	Activities are walking outdoor, cooking, using public transportation, using money, and heavy housework.	5- domains Scale 0-1-2- 3 unequal Score 9 = independence Score 0 = dependence	Alpha = 0.94

Table 3.2 Summary of the Instruments of the study (continue)

Instrument	Ideology	Definitions	Scale	Validity	Reliability
Perceived Self-efficacy in Stroke for ADL activities ROM exercise and massage Scales(PSSARS)	degree of confidence to ADL activities, ROM exercise and massage	people's judgment of their capabilities to organize and execute courses of action required to attain designated types of performances.	5-point Likert-scale 1= no, definitely not 2=probably no 3=maybe yes or may be no 4= probably yes 5= yes, definitely	Content Validity CVI=.90	Alpha= 0.97
Outcome Expectation for ADL activities, ROM exercise and massage Scale (OEARS)	outcome expectations and benefits related to ADLactivities, ROMexercise and massage	degree of confidence they had performed activities of daily living and ROM exercise and massage will improve their strength and abilities.	5-point Likert-scale 5= strongly agree 4= agree 3= neither agree nor disagree 2= disagree 1=strongly disagree	Content Validity CVI=.90	Alpha= 0.95
The Physical Functional Status Diary (PFSD)	Patients or care giver recorded the actual activity they had done in each day	Activities record -frequency -intensity -duration -barriers of doing the ADL activities, ROM exercise and massage	Exercise and activities Yes = exercise and activities No = no exercise and activities frequency= time/day intensity=repetitions/time duration=minutes/time Score depending on the levels of assistance; 1=required assistive person and device, 2= required assistive person 3= independent with assistive device 4= completely independent Level of assistance needed to perform the activity 0=did not meet the criteria 1= completed the exercise activity	-	-

The intervention

After physician approval all the participants were randomly assigned to either experimental or control group.

Control group

The control group had the introduction and explanation of study informed consent and screening by inclusion and exclusion criteria. The participants who met inclusion, researcher took the baseline data collection (pretest) on 1st week and data collection and posttest on 12th week. And on 4th week pretest for perceived self-efficacy and 12th week for posttest were done.

Experimental group

The experimental group had the introduction and explanation of study, screening according to the inclusion and exclusion criteria, and if eligible to participate, informed consent. The experimental group received a home-based rehabilitation program after discharge from the hospital to home. The intervention was done one week in duration, and three weeks for motoring with follow-up at the 4th and 12th weeks. The researcher delivered a home-based rehabilitation program to all experimental group participants five times a week for 45 minutes per session for one week. Because the contact between the researcher and patients were relatively intense for the first one week, the intervention was tapered. Therefore, there was no visit after the 8thweek, as this was a trial for patients' independence. At the 4th week patients were evaluated for perceived self-efficacy. During 8th -12th week the researcher left contact information prompt so patients and care givers can contact the researcher if questions arise. At the 8th week that was final visit, patient

received a follow up by phone call visit (telephone visiting) once a week until the program ended. Follow-up outcome data was collected during the12th week.

A home-based rehabilitation program in this study

Many conceptual models of health behavior now include self-efficacy as an integral influence in the adaptation and maintenance of behavioral change related to a wide array of health promotion behaviors(Colleen Keller, 1999).In the self-efficacy paradigm behavior change and maintenance are a function of outcome expectations and self-efficacy. Bandura, (1986) explained the mediating process involved in acquiring and maintaining the skills and attitudes needed for successful living with stroke in the community.

The Home-based rehabilitation program in this study was the intervention that developed by using theory-based Social Cognitive Theory (SCT) with emphasis on self-efficacy. The program focuses on personal, behavioral and environmental factors that influence self-efficacy (Bandura, 1986). It will be a bundled intervention including researcher-patient interaction and discussion regarding specific ADL rehabilitation and ROM exercise and massage, self monitoring (patients' completing of physical functional status diary (PFSD), family support and encouragement, and information prompting. The patient interactions and discussion will be aimed at increasing self-efficacy and outcome expectations. These will be done through four sources of self-efficacy: 1) performance accomplishments; 2) verbal persuasion or encouragement from others; 3) social modeling or vicarious experiences; and 4) physiological states or cues (information). Goals of ADL rehabilitation ROM exercise and massage in each phase of recovery will be set based on the objectives of rehabilitation in each phase. The participants in the experimental group

will be taught self –monitoring by observing, evaluating and recording their activities and the barriers to them in the PFSD (physical functional status diary). The first week that they will start to record their PFSD is 2-3 day after discharge to home. Self- monitoring, and goal-setting strategies according to SCT will be aimed at helping develop self regulation capability and also increase self-efficacy and outcome expectations. This intervention is adapted from a study by (Harnirattisai, 2003) studied in Thai elders after knee replacement surgery. The home- based program was on ADL activities, ROM exercise and massage in a behavioral change intervention study.

In addition, in order to influence the factor of family support, the researcher will educate participants about the common stroke related problems, prevention and management and discuss ADL rehabilitation and ROM exercise and massage with the patients and the care giver most participative in their recovery at home. The researcher will encourage care giver and other family members to support the patient‘s advancing ADL rehabilitation and ROM exercise participation. The experimental group participants will also be given the information prompts regarding ADL rehabilitation and ROM exercise and massage that they will do. These information prompts will be pamphlet or digital media such as a CD, CVD, or DVD. The linkage between the components of the theory intervention strategies and description of mechanisms based on SCT will be explained and illustrated in Intervention Protocol (IP) (Appendix A)

The desired changes in health behavior can further be facilitated through goal setting with regular feedback and support. Social Cognitive Theory (SCT) explains the mediating process involved in acquiring and maintaining the skills and attitudes needed for successful living with stroke in the community.

In the self-efficacy paradigm behavior change and maintenance are a function of outcome expectations and self-efficacy expectation (Bandura,1986). An outcome expectation is the belief that a certain behavior will lead to a specific outcome. Self-efficacy expectation is a person's belief about how capable they are of performing the specific behavior that leads to the outcome or conviction that one can successfully execute the behavior required to produce the outcome(Elizabeth, 2002;Lee, 2001). In a home-based rehabilitation program persuasion has been used by both participants and group facilitators to stimulate participants to gradually set their goals higher or to try out new activities (Lee, 2001). In this context the social support provided by the group in home-based rehabilitation programs may facilitate self-efficacy. Participant belief about their condition or how they interpret symptoms can affect their self-efficacy to manage a chronic condition. Working with participants to change their physiological reactions, their responses to exercise, and their interpretation of their own physiological information, may increase confidence in their own abilities (Bandura, 1977).

Data Collection

1 Data of program development

The trial group both in hospital and community had the introduction and explanation of study, screening according to the inclusion and exclusion criteria, and if eligible to participate, informed consent. The trial group received an interactive interview, observation, in the hospital and after discharge from the hospital to home.

2 Procedures in data collection were as follows:

1. Following IRB(Chulalongkorn University) approval and the approval of the directors of Banphaeo Hospital Samuthsakorn Province, Thailand, the researcher began the study.

2. The sample was recruited from OPD in medical clinic and medical ward of Banphaeo Hospital.

3. The researcher met with the physicians and professional nurses to explain the purpose of the study, the behavioral change intervention, and the instruments used in the study.

4. To assure that the treatment and nursing care given to each patient in hospital were largely similar, the researcher discussed this with the physicians and nurses in the hospital and asked for their cooperation in standardizing the routine care, and rehabilitation care.

5. To control intervention integrity and reliability measurements, the nurses and physicians in hospital were blind to the participants' assignments.

6. Randomly assign the subjects into an experimental or control group.

7. The demographic data and illness history of the samples were asked.

8. The samples in the control group and the experimental group still received nursing care as routinely conducted by the health personnel at the inpatient and outpatient department.

9. The researcher provided the interventions to the participants in the experimental group. This program was conducted in 2 phases and 4 sessions.

Phase1 was 1st -4th week after discharge to home and phase 2 was 9th -12th week was follow up phase. Both two phases included theory–based intervention topic for 4 sessions of implementation as follow: (Appendix A)

1. Introduction session. This session included self-monitoring, need assessment and goal- setting.
2. Preparation session. This session was self-efficacy development by 4 sources including family support, external prompt and incentive motivator.
3. Practice session. This session was time for stroke patients and caregiver demonstrated the skill that they had learnt in the 2nd session.
4. Outcome evaluation session. This session was the last one to evaluated outcome of their skills.

Protection of human subjects

The human rights of the subjects post stroke patients were respected in this study. Before starting the study, the study plan for human subjects was submitted to the Institutional Review Board (IRB) Chulalongkorn University and Banphaeo Hospital Samuthsakorn Province, Thailand for approval (Appendix E). Potential participants were given an information sheet (Appendix F) describing the study focused on objective, intervention and data collecting process. Participants had an opportunity to ask questions and express concerns prior to giving informed consent (Appendix G). All data were kept and used of identification numbers. Participants were assured that the data was kept confidential and was reported only as group data. All participants were informed of their rights to withdraw from the study at any time with no consequences at all. The participants

who were willing to participate by a verbal agreement, or signed informed consent had to access more detail of the stroke patients' illness history from the hospital.

In control group, the participants had the right to receive the same intervention provided to experiment group after posttest evaluation, which was 3 months after participated in the Home-based Rehabilitation Program.

Data Analysis

The researcher checked the data collection instruments for completeness and accuracy at the time of data collection. The Statistical Package for the Social Sciences (SPSS/PC) 11.5 was used to analyze the data.

1. Descriptive statistics were conducted to describe the demographic data and data related to stroke of the samples. The frequency means, and percentages for demographic variables were summarized by intervention and control groups to describe the sample. Descriptive statistics means, and standard deviations were summarized for the dependent variables by group and time points at pretest and posttest.

2. Pair T-Test was conducted to examine the differences on Perceived self-efficacy, and Outcome expectation within the control and experimental group at pretest (1^{st} week) and posttest (12^{th} week).

3. ANCOVA with pretest as covariate was conducted to examine the differences on Perceived self-efficacy, and Outcome expectation between the control and experimental group at pretest (1^{tst} week) and posttest (12^{th} week).

4. Wilcoxon signed-rank test was conducted to examine the differences on physical functional status (ADL/IADL) in the control and experimental group at pretest (1^{st} week) and posttest (12^{th} week).

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CHAPTER IV

RESEARCH RESULTS

In this chapter, study finding are presented in two parts: data of program development and hypotheses testing. The general research findings which included demographic characteristics and characteristics regarding stroke are presented. The findings resulting from analysis of changes are reported regarding perceived self-efficacy for ADL activities, ROM exercise and massage, outcome expectations for ADL activities, ROM exercise and massage and physical functional status. The detailed description of the dependent variables and other related variables are explored.

Data of program development

Ten post stroke patients were observed and interactive interview. Demographic characteristics in the trial group were interview on gender, age, marital status, occupation income, and education of the patients and their care giver. Demographic characteristics related to stroke illness were compared with scale of stroke type, stroke severity, hemiplegics side, mental score, onset to admission, length of stay, risk factor and operation.

A total of 10 participants were analyzed the demographic characteristics of the sample. All 10 participants (100%) were Buddhists and all of them lived with their care giver. There were 5 females (50.00%) and 5 males (50.00%) ranging in age from 55 to 74 years. Almost all 8 participants (80.00%) were married while 2 (20.00%) were single. In addition, 3 participants (30.00%) had elementary level education whereas 7(70.00%) had

no education. Most of the participants (90.00%) had an income less than 5,000 Bath per month. The number of family member was 1-3 persons in family.

The demographic characteristics related to stroke patients. Stroke type of the sample were ischemic (n=7, 70.00%) and hemorrhagic stroke (n=3, 30.00%) with right hemiplegia (n=3, 50.00%) and left hemiplegia (n=7, 70.00%). Female stroke (n=4, 40.00%) were less than male (n=6, 60.00%). Stroke patients who had age under 60 years old were 6 (60.00%) whereas over 60 years old were 4(40.00%). It was found that severity of stroke (screening by NIHSS) had two levels moderate stroke (score 7-16) had 6(60.00%) and mild stroke (score0-6) had 4(40.00%). Stroke patients who had normal cognition were 7 (70.00%) and 3cognitive impairment (30.00%). It was found that onset to admission was 4-12 hour (n=3, 30.00%). Hypertension was the most risk factor over others (n=6, 60.00%).

The first questions of all participants was about occurring to their patients and she/he will die or not, and what should they do. Mostly of patients and caregiver did not know the risk factor and how to prevent secondary stroke. They did not know stroke symptoms and signs, disabilities result from stroke and post-stroke rehabilitation. They want to know how many days that their patients will come back home. They had no time to take care of them. They have many things to do with their families. They have no time to get rehabilitation in the hospital. Their houses were far away from hospital and lack of convenience transportation. They want to carry the patients to the temple that someone can massage in order to get better immediately. They want the patients get well rapidly and work again. Mostly stroke were the old person who did not do anything by

themselves as usual and when they got sick they do nothing to help themselves. The stroke patients and caregiver had spiritual believes to get well by doing nothing.

The component of the program were listed in 5 issues

- Information on stroke and its consequences, prevention, and management options;
- Involvement in goal setting for rehabilitation and discharge planning;
- Instruction on common stroke related problems and their prevention, management of pressure areas and prevention of bed sores, continence, nutrition, positioning, gait facilitation, and advice on benefits and local services;
- Instruction on encouragement post stroke patient and caregiver learn about their abilities and informal instruction on facilitating transfers, mobility, and activities of daily living tasks;
- Advice on community services, home modification, benefits, and allowances, including contact information for voluntary support services for patients and caregivers;

The program was evaluated on an ongoing basis by the feedback received from patient. Massage therapy was conducted and educated by researcher. A standardized, precise 15-20 minutes massage treatment protocol was developed to teach caregiver to massage heir patients.

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Characteristic of the Samples

1. Demographic characteristics

Sixty eight post stroke patients who met the criteria were approached to participate the study. Of the participants, 32 were in the experimental group and 36 were in control group. Eight participants dropped from the study: two from the experimental group and six from the control group. The reasons for withdrawal were moving to another place and refused to come back for the follow up care, no care giver, unable to be contacted after discharge and did not know which whom they will stay with. The attrition rate of the present study was 1.18%. Finally, 30 participants in the control group and 30 participants in the experimental group were further analyzed. Comparison of the mean of the demographic characteristics in the control group and experimental group were done using the Chi square Test on the scale of gender, age, marital status, occupation income, and education of the patients and their care giver. Demographic characteristics related to stroke illness were compared with scale of stroke type, stroke severity, hemiplegics side, mental score, onset to admission, length of stay, risk factor and operation.

A total of 60 participants were randomly assigned to either usual care control (n=30) or experimental (n=30) group. The Table 4.1 showed the demographic characteristics of the sample. All 60 participants (100%) were Buddhists and all of them lived with their care giver. There were 29 females (48.30%) and 31 males (51.70%) ranging in age from 42 to 94 years. Almost all 56 participants (93.30%) were married while 4 (6.70%) were single. In addition, 39 participants (65.00%) had elementary level education whereas 15 (25.00%) had no education. Most of the participants (46.7%) had

an income less than 5,000 Bath per month. The mean number of family member was 1-3 persons in family.

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Table 4.1. Demographic characteristic of stroke patients in the experimental and control groups. (n=60).

Characteristics	Control group		Experimental group		Total	
	Number	(%)	Number	(%)	Number	(%)
Gender Female	15	(50)	14	(46.7)	29	(48.3)
Male	15	(50)	16	(53.3)	31	(51.7)
Age group						
40-50	1	(3.3)	2	(6.7)	3	(5.0)
51-60	6	(20)	10	(33.3)	16	(26.7)
61-70	10	(33.3)	7	(29.3)	17	(28.3)
71-81	9	(30)	9	(30.0)	18	(30.0)
81-90	3	(10)	2	(6.7)	5	(8.3)
91-100	1	(3.3)	0	(0)	1	(1.7)
Marital status						
Single	1	(3.3)	3	(10.0)	4	(6.7)
Married	29	(96.7)	27	(90)	56	(93.3)
Education						
Uneducated	12	(40)	3	(10)	15	(25)
Elementary level	14	(46.7)	25	(83.3)	39	(65)
Secondary level	4	(13.3)	2	(6.7)	6	(10)
Occupation						
Monk	1	(3.3)	1	(3.3)	2	(3.3)
Unemployed	12	(40)	14	(46.7)	26	(43.3)
Day Laborer	9	(30)	7	(23.3)	16	(26.7)
Merchant/farmer	7	(23.3)	5	(16.7)	12	(20)
Government employee	1	(3.3)	3	(10)	4	(6.7)
Income						
Monk	1	(3.3)	1	(3.3)	1	(3.3)
<5,000	14	(46.7)	13	(43.3)	27	(45)
5,000-10,000	10	(33.3)	8	(26.7)	18	(30)
>10,000	5	(16.7)	8	(26.7)	13	(21.7)
Member in home						
1-3	16	(53.3)	9	(30)	25	(42.7)
>3	14	(46.7)	21	(70)	35	(58.3)
House keeping						
By own	3	(10)	2	(6.7)	5	(8.3)
Other	21	(70)	20	(66.7)	41	(68.3)
By own with others	6	(20)	8	(26.7)	14	(23.3)

4.2. Demographic characteristics related to stroke

Table 4.3 shown the demographic characteristics related to stroke patients. Stroke type of the sample were ischemic (n=50, 83.3%) and hemorrhagic stroke (n=10, 16.7%) with right hemiplegia (n=32, 53.3%) and left hemiplegia (n=28, 64.67%). Female stroke (n=29, 48.3%) were less than male (n=31, 51.7%) ranging in age from 42 to 94 years old. Stroke patients who had age under 60 years old were 19 (31.7%) whereas over 60 years old were 31(68.3%). It was found that severity of stroke (screening by NIHSS) had two levels moderate stroke (score 7-16) had 24(40.00%) and mild stroke (score0-6) had 36(60.00%). Stroke patients who had normal cognition were 43 (71.7%) and 17cognitive impairment (28.3%). It was found that onset to admission in experimental group was 4-12 hour (n=12, 40%) more than control group (n=7, 23.3%). Almost all 47 participants had length of stay in the hospital less than 7 days in 23 (76.7%) control group and24 (80%) in experimental group. Table 4.3 shown that hypertension was the most risk factor over others (n=44, 73.3%).

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Table 4.2 Characteristics relate to stroke

Characteristics	Control group		Experimental group		Total	
	Number	(%)	Number	(%)	Number	(%)
Stroke type						
Ischemic	25	(83.3)	25	(83.3)	50	(83.3)
Hemorrhage	5	(16.7)	5	(16.7)	10	(16.7)
Age group						
40-50	1	(3.3)	2	(6.7)	3	(5.0)
51-60	6	(20.0)	10	(33.3)	16	(26.7)
61-70	10	(33.3)	7	(29.3)	17	(28.3)
71-81	9	(30.0)	9	(30.0)	18	(30.0)
81-90	3	(10.0)	2	(6.7)	5	(8.3)
91-100	1	(3.3)	0	(0)	1	(1.7)
Hemiplegia						
Right side	20	(66.7)	12	(40.0)	32	(53.3)
Left side	10	(33.3)	18	(60.0)	28	(64.6)
Severity of stroke(NIHSS)						
Mild (0-6)	18	(60.0)	18	(60.0)	36	(60.0)
Moderate (7-16)	12	(40.0)	12	(40.0)	24	(40.0)
Mental Score (CMT)						
Normal (=,>15)	20	(66.7)	23	(76.7)	43	(71.7)
Cognitive impairment (<15)	10	(33.3)	7	(23.3)	17	(28.3)
Onset to admission						
Less than 3 hours	3	(10.0)	8	(26.7)	11	(18..3)
4-12 hours	7	(23.3)	12	(40.0)	19	(31.7)
with in 24 hours	9	(30.0)	6	(20.0)	15	(25.0)
more than 24 hours	11	(36.7)	4	(13.3)	15	(25.0)
Length of stay						
Less than 7 days	23	(76.7)	24	(80.0)	47	(78.3)
8-14 days	4	(13.3)	5	(16.7)	9	(15.0)
more than 14 days	3	(10.0)	1	(3.3)	4	(6.7)
Risk factor						
Smoking	7	(23.3)	10	(33.3)	17	(28.3)
Alcohol	6	(20.0)	7	(23.3)	13	(21.7)
Hypertension	20	(66.7)	24	(80.0)	44	(73.3)
Hyperlipidemia	10	(33.3)	3	(10.0)	13	(21.7)
Diabetes mellitus	13	(43.3)	8	(26.7)	21	(35.0)
Heart disease	4	(13.3)	4	(13.3)	8	(13.3)
0thers	8	(26.7)	6	(20.0)	14	(23.3)
Operation						
Yes	6	(20)	7	(23.3)	13	(26.7)
No	22	(73.3)	22	(73.3)	44	(73.3)
Stroke hemorrhage	2	(6.7)	1	(3.3)	3	(5.0)

3. Characteristics of care giver

Table 4.2 shown demographic characteristics of care giver. More than a half of care giver 48 (80.%) were female and 12 (20%) were male ranging in age from16 to 84 years. All 60 care givers were Buddhists and lived with post stroke patients. They were son and daughter (n=27,45%),spouse(n=17,28.3%),relatives(n=12,20%), parent(n=2,3.3%) and 1 sibling and 1 employee. More than a half of care giver (n=41, 68.3%) were married while 18 (30%) were single and 1(1.7%) divorced. In addition, more than a half of them (n=40, 66.7%) had elementary level education whereas11 (18.3%) had no education. Table 4.2 shown care giver were unemployed (n=17, 28.3%), day laborer (n=31, 15.7%) and 1 (1.7%) government employer. Care giver for both the experimental and the control group were recruited from the same community. Their were no significant difference between the experimental and the control group in regard to gender, age group, marital status, educational level, occupation and income of care giver.

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Table 4.3 Demographic characteristics of care giver

Characteristics	Control group		Experimental group		Total	
	Number	(%)	Number	(%)	Number	(%)
Gender						
Female	26	(13.30)	22	(73.30)	48	(80.00)
Male	4	(86.70)	8	(26.70)	12	(20.00)
Age group						
10-20	0	(0)	1	(3.30)	1	(1.70)
21-40	12	(40.00)	14	(46.70)	26	(43.30)
41-60	13	(43.30)	8	(26.70)	21	(35.00)
61-80	4	(13.00)	7	(23.30)	11	(18.30)
81-90	1	(3.30)	0	(0)	1	(1.70)
Marital status						
Single	8	(26.70)	10	(33.30)	18	(30.00)
Married	22	(73.30)	19	(63.30)	41	(68.30)
Devoice	0	(0)	1	(3.30)	1	(1.70)
Education						
Uneducated	8	(26.70)	3	(10.00)	11	(18.30)
Elementary level	19	(63.30)	21	(70.00)	40	(66.70)
Secondary level	2	(6.70)	3	(10.00)	5	(8.30)
High school	0	(0)	1	(3.30)	1	(1.70)
Higher Education	1	(3.30)	2	(6.70)	3	(5.00)
Occupation						
Monk	1	(3.30)	1	(3.30)	2	(3.30)
Unemployed	8	(26.70)	9	(30.00)	17	(28.30)
Day Laborer	18	(60.00)	13	(43.30)	31	(15.70)
Merchant/farmer	3	(10.00)	6	(20.00)	9	(3.00)
Government employee	0	(0)	1	(3.30)	1	(1.70)
Income						
Monk	1	(3.30)	1	(3.30)	2	(6.70)
<5,000	12	(40.00)	13	(43.30)	25	(41.70)
5,000-10,000	10	(33.30)	9	(30.00)	19	(31.70)
>10,000	7	(23.30)	7	(23.30)	14	(23.30)
Relationship with patient						
Son, daughter	15	(50.00)	12	(40.00)	27	(45.00)
parent	1	(3.30)	1	(3.30)	2	(3.30)
spouse	8	(26.70)	9	(50.00)	17	(28.30)
sibling	0	(0)	1	(3.30)	1	(1.70)
relative, in law	6	(20.00)	6	(20.00)	12	(20.00)
employee	0	(0)	1	(3.30)	1	(1.70)

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Relationship with patient						
Son, daughter	15	(50.00)	12	(40.00)	27	(45.00)
parent	1	(3.30)	1	(3.30)	2	(3.30)
spouse	8	(26.70)	9	(50.00)	17	(28.30)
sibling	0	(0)	1	(3.30)	1	(1.70)
relative, in law	6	(20.00)	6	(20.00)	12	(20.00)
employee	0	(0)	1	(3.30)	1	(1.70)

Hypotheses Testing

The comparison of physical functional status of the control and experimental group of those variables at the pretest and the posttest are described below.

1. Comparison of Perceived self-efficacy and outcome expectation at pre test and posttest in control group by using Paired-T Test

Testing of the statistical differences revealed that the mean score Perceived self-efficacy at pretest and post test of the control group was significantly different ($p<.05$).(table 4.8) But on outcome expectation at pretest and post test of the control group was non significantly different ($p>.05$).(table 4.4)

Table4.4 comparison of Perceived self-efficacy and outcome expectation at pre test and posttest in control group by using Paired-T Test

Control group	**Pretest**		**Posttest**		**t**	**p**
	Mean	**SD**	**Mean**	**SD**		
Perceived self-efficacy	37.50	12.38	45.70	12.30	4.47	.00*
Outcome expectation	73.73	15.14	65.90	21.67	-1.79	.08ns

2. Comparison off Perceived self-efficacy and outcome expectation at pre test and posttest in experimental group by using Paired-T Test

Testing of the statistical differences revealed that the mean score Perceived self-efficacy at pretest and post test of the experimental group was significantly different ($p<.05$)(table 4.5). But on outcome expectation at pretest and post test of the experimental group was non significantly different ($p>.05$).(table 4.5)

Table 4.5 comparison off Perceived self-efficacy and outcome expectation at pre test and posttest in experimental group by using Paired-T Test

Experimental group	**Pretest**		**Posttest**			
	Mean	**SD**	**Mean**	**SD**	**t**	**p**
Perceived self-efficacy	45.83	16.06	59.90	13.86	5.67	0.00 *
Outcome expectation	80.96	18.87	85.66	18.49	1.51	0.14 ns

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3. Comparison of Perceived self-efficacy and Outcome expectation at pretest between group (control and experimental group) by using ANOVA

Testing of the statistical differences revealed that the mean score Perceived self-efficacy at pre test between group was significantly different ($p<.05$)(table 4.6). But on Outcome expectation at pre test between group was not significantly different ($p>.05$)(table 4.6).

Table 4.6 comparison of Perceived self-efficacy and outcome expectation at pretest between groups.

Test	Variable	Control group		Experimental group		F	P
		M	SD	M	SD		
Pretest	Perceived self-efficacy	37.50	12.38	45.83	16.06	5.06	.02*
	Outcome expectation	73.73	15.149	80.96	18.87	2.67	.10ns

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4. Comparison of Perceived self-efficacy and Outcome expectation at posttest between group (control and experimental group) by using ANCOVA (pretest as covariate)

Testing of the statistical differences revealed that the mean score Perceived self-efficacy and Outcome expectation at post test between group was significantly different ($p<.05$)(table 4.7).

Table4.7 comparison of Perceived self-efficacy and outcome expectation at posttest between group by using ANCOVA (pretest as covariate)

Test	Variable	Control group		Experimental group		F	P
		M	SD	M	SD		
Posttest	Perceived self-efficacy	45.70	12.30	59.90	13.86	11.53	.00*
	Outcome expectation	65.90	21.67	85.66	18.49	9.86	.00*

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5. Comparison of physical functional status (measured by three of these scales: Barthel Index, and Chula ADL) **between pretest and post test in control group**

In general, the finding revealed that the participants in the control group had independently activity daily living(measured by Barthel Index) with the total mean score of 9.10 (SD=6.55) at pretest. And the mean score at posttest was 13.63 (SD=6.47). Testing of the statistical differences revealed that the mean score on independently activity daily living (measured by Barthel Index) of the control group at the posttest phase was significantly different than at pretest phase($p<.05$)

The mean score of independently activity daily living (measured by Chula ADL) was .96 (SD=1.37) at pretest. And the mean score at posttest was 2.06 (SD=1.52). Testing of the statistical differences revealed that the mean score on independently activity daily living (measured by Chula ADL) of the control group at the posttest phase was significantly different than at pretest phase($p<.05$)(table 4.8)

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Table 4.8. Comparison of physical functional status in control group between pretest and post test by Wilcoxon signed-rank test.

Physical functional status	Pretest		Posttest		Z	p- value
	Mean	SD	Mean	SD		
Barthel Index	9.10	6.55	13.63	6.47	-4.74	.00*
ChuADL	.96	1.37	2.06	1.52	-4.85	.00*

Significant .05

		N	Mean Rank	Sum of Ranks
sum of post test Barthel Index score - sum pre test of Barthel Index score	Negative Ranks	1(a)	2.00	2.00
	Positive Ranks	20(b)	11.45	229.00
	Ties	9(c)		
	Total	30		
sum post test of Chula ADL score - sum of pre test of Chula ADL score	Negative Ranks	0(d)	.00	.00
	Positive Ranks	15(e)	8.00	120.00
	Ties	15(f)		
	Total	30		

6. Comparison of physical functional status (measured by three of these scales: Barthel Index and Chula ADL) **between pretest and post test in experimental group by Wilcoxon signed-rank test.**

In general, the finding revealed that the participants in the experimental group had independently activity daily living(measured by Barthel Index) with the total mean score of 13.16 (SD=5.73) at pretest. And the mean score at posttest was 16.53 (SD=4.46). Testing of the statistical differences revealed that the mean score on independently activity daily living (measured by Barthel Index) of the control group at the posttest phase was significantly different than at pretest phase($p<.05$)

The mean score of independently activity daily living (measured by Chula ADL) was 2.40 (SD=2.11) at pretest. And the mean score at posttest was 2.96 (SD=1.97). Testing of the statistical differences revealed that the mean score on independently activity daily living (measured by Chula ADL) of the control group at the posttest phase was significantly different than at pretest phase($p<.05$)(table 4.9)

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Table 4.9 Comparison of physical functional status between pretest and post test in experimental group by Wilcoxon signed-rank test.

Physical functional status	Pretest		Posttest		Z	p- value
	Mean	SD	Mean	SD		
Barthel Index	13.16	5.73	16.53	4.46	-3.82	.00*
ChuADL	2.40	2.11	2.96	1.97	-2.38	.01*

		N	Mean Rank	Sum of Ranks
sum of post test 3 month Barthel Index score - sum pre test of Barthel Index score	Negative Ranks	0(a)	.00	.00
	Positive Ranks	19(b)	10.00	190.00
	Ties	11(c)		
	Total	30		
sum post test 3 month of Chula ADL score - sum of pre test of Chula ADL score	Negative Ranks	0(d)	.00	.00
	Positive Ranks	7(e)	4.00	28.00
	Ties	23(f)		
	Total	30		

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7. **Comparison of physical functional status** (measured by three of these scales: Barthel Index, and Chula ADL) **between control group and experimental by Mann-Whitney U Test**

Testing of the statistical differences revealed that the mean rank on physical functional status (measured by Barthel Index and Chula ADL) of the control group and experimental group was not significantly different (p<.05).(table 4.10)

Table 4.10 Comparison of physical functional status (measured by three of these scales: Barthel Index, and Chula ADL) between control group and experimental by Mann-Whitney U Test

	N	Mean	Std. Deviation	Z	p-value
CHULA	60	.83	1.22	-.43	.66ns
BAR	60	3.95	4.41	-.92	.35ns
Group	60	1.50	.50		

	Group	N	Mean Rank	Sum of Ranks
CHULA	control	30	34.25	1027.50
	experiment	30	26.75	802.50
	Total	60		
BAR	control	30	31.45	943.50
	experiment	30	29.55	886.50
	Total	60		

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CHAPTER V

CONCLUSION AND DISCUSSION

Conclusion

The conclusion of this study is presented in three parts as follows: 1) summary of the study 2) implications and recommendations 3) limitation of the study.

Summary of the study

A quasi-experimental pretest-posttest with control group design was used to test the home-based rehabilitation program on Perceived self-efficacy and Outcome expectation in post stroke patients, compared to a control group who receive routine care. The specific objectives of the study were to proposed and test the home-based rehabilitation program for post stroke patients on the Perceived self-efficacy, Outcome expectation and physical functional status (ADL and IADL).

The sample included 60 men and women post stroke patients at Banphaeo general hospital and public organization ,Samuthsakorn Province, Thailand and were randomly assigned to an experimental group and a control group. The number of each group was 30 participants, were recruited from medical outpatients department. The control group received only routine care while the experimental group received routine care with a home-based rehabilitation program. Routine care was given by a registered nurse in the medical ward and a community nurse in a patient's home. The program was comprised of four sessions: 1) introduction, 2) preparation, 3) practice, and 4) outcome evaluation.

Six sets of test were questionnaires used as a screening test and data collection as follows: 1) Chula Mental Test (CMT) alpha =0.82, 2) National Institutes of Health Stroke Scale(NIHSS) alpha=0.73, 3) Perceived Self-efficacy alpha=0.97,and 4)

Outcome Expectation alpha=0.95, 5) Barthel ADL Index(BI alpha=0.94) ,and 6)Chula ADL alpha=0.94.

Six experts validated the questionnaires and manual booklets. The five experts validated the videotape on a home-based rehabilitation program.

Data collection consisted of two phases: 1) pretest at 1st week and 2) posttest at 12th week. In each phase, the researcher tested and interviewed all sample using the tests and questionnaires. Perceived Self-efficacy, Outcome Expectation, ADL and IADL were evaluated at 1st week for pre test , and 12th for posttest .

Descriptive statistic was used to analyze demographic data. The Paired-Sample T Test, ANOVA, ANCOVA test and Mann-Whitney's U test were applied to test the research hypotheses. The findings could be summarized into two parts:

1. Characteristics of the samples

Sixty eight post stroke patients who met the criteria were approached to participate the study. Of the participants, 32 were in the experimental group and 36 were in control group. Eight participants dropped from the study: two from the experimental group and six from the control group. The reasons for withdrawal were moving to another place and refused to come back for the follow up, no care giver, unable to be contacted after discharge and did not know whom they will stay with. The attrition rate of the present study was 1.18%. Finally, 30 participants in the control group and 30 participants in the experimental group were further analyzed. Comparison of the mean of the demographic characteristics in the control group and experimental group were done using independent t test on the scale of gender, age, marital status, occupation income, and education of the patients and their care giver. Demographic characteristics related to

stroke illness were compared with scale of stroke type, stroke severity, hemiplegics side, mental score, onset to admission, length of stay, risk factor and operation.

A total of 60 participants were randomly assigned to either control (n=30) or experimental (n=30) group. All 60 participants (100%) were Buddhists and all of them lived with their care giver, 29 females (48.30%) and 31 males (51.70%) ranging in age from 41 to 94 years. Almost all 56 participants (93.3%) were married. In addition, 39 participants (65.00%) had elementary level education. Unemployed was the majority of participants 26(43.30%). An income less than 5,000 Bath per month was 27 (45.00%). The mean number of family member was 1-3 persons in family.

Demographic characteristics related to stroke

Of all the samples the major types of stroke were ischemic (n=50, 83.3%) more than hemorrhagic stroke (n=10, 16.7%) with right hemiplegia (n=32, 53.3%) more than left hemiplegia (n=28, 64.67%). Female stroke (n=29, 48.3%) were less than male (n=31, 51.7%) ranging in age from 41 to 94 years old in control group and from 42 to 84 years old in the experimental group. Stroke patients age under 60 years old were 19 (31.7%) whereas over 60 years old were 41(68.3%), severity of stroke (screened by NIHSS) were put in two levels: moderate stroke (score 7-16) consisting of 24(40.00%) and mild stroke (score0-6) of 36(60.00%). Stroke patients who had normal cognition were 43 (71.7%) and 17cognitive impairment (28.3%). It was found that onset to admission in the experimental group was 4-12 hours (n=12, 40%) more than control group (n=7, 23.3%). Almost all 47 participants had length of stay in the hospital less than 7 days in 23 (76.7%) of the control group and24 (80%) in experimental group. Hypertension was the most risk factor over others (n=44, 73.3%).

Characteristics of care giver

More than half of care givers 48 (80.00%) were female and 12 (20.00%) were male ranging in age from 16 to 84 years. All 60 care givers were Buddhists and lived with post stroke patients. Mostly they were son and daughter (n=27, 45%), More than a half of care givers (n=41, 68.3%) were married. In addition, more than a half of them (n=40, 66.7%) had elementary level education , unemployed (n=17, 28.3%),There was no significant difference between the experimental and the control group regarding gender, age group, marital status, educational level, occupation and income of care givers.

2 Results of hypotheses testing supported the hypotheses as follows:

2.1. In the control group, the mean score on Perceived self-efficacy at the pretest (mean=37.50, SD=12.38) and the post test (mean=45.70, SD= 12.30) was significantly different (t-value= -4.47, p-value<.05). But on outcome expectation at the pretest (mean=73.73, SD=15.14) and the post test (mean=65.90, SD=21.67) was not significantly different (t-value =1.79, p-value>.05).

2.2. In the experimental group, the mean score on Perceived self-efficacy at the pretest(mean=45.83, SD=16.06) and the post test (mean=59.90,SD=13.86)was significantly different (t-value = -5.67 , p-value<.05). But Outcome expectation at the pretest (mean= 80.96, SD=18.87)and post test (mean=85.66, SD=18.49) was not significantly different (t-value = -1.51, p-value>.05).

2.3. At the pre test phase, the mean score on Perceived self-efficacy of the control group (mean=37.50, SD= 12.30) was significantly lower than the experimental group (mean=45.83, SD=16.06) (F=5.06, p-value<.05). But Outcome expectation of the control group (mean=73.73, SD=15.14) was not significantly lower than the experimental group

(mean= 80.96, SD=18.87) (F=2.67, p-value >.05)

2.4. At the post test phase, the mean score on Perceived self-efficacy of the control group (mean = 45.70, SD = 12.30) was significantly lower than the experimental group (mean = 59.90, SD = 13.86) (F =11.53, p-value <.05). And Outcome expectation of the control group (mean= 65.90, SD = 21.67) was significantly lower than the experimental group (mean = 85.66, SD=18.49) (F=9.86, p-value <.05).

2.5 The mean score between group, on Perceived self-efficacy and Outcome expectation at post test between group was significantly different (p<.05).

2.6 In control group, the mean score on ADL (Barthel Index) at pretest phase(mean=9.10,SD=6.55) and posttest phase(mean=13.63 ,SD=6.47)was significantly different (p<.05).And the mean score of IADL (Chula ADL) at pretest phase(mean=.96,SD=1.37)and posttest phase(mean=, 2.06 SD=1.52) was significantly different (p<.05).

2.7. In experimental group**,** the mean score on ADL (Barthel Index) at pretest phase (mean=13.16, SD=5.73) and posttest phase (mean=16.53, SD=4.46) was significantly different (p<.05).And the mean score of IADL (Chula ADL) at pretest phase(mean=2.40, SD=2.11) and posttest phase (mean=2.96,SD=1.97) was significantly different (p<05).

2.8. The mean score between group, on ADL (Barthel Index) and IADL (Chula ADL) of the control group and experimental group was not significantly different (p<.05).

Implication and Recommendation

1. Implication and Application of Research Findings

Four aspects: 1) the program, 2) the nursing system, 3) the patients, and 4) the setting context must be considered if the program is to be implemented in nursing practice.

1.1 **The program**: This intervention was designed with SCT as a theoretical framework to promote the patients and caregivers' efficacy. Effective use of the program depends on the nurse's psychological understanding of its contents and technology as follow.

1.1.1 Contents : The target group for this program is the post stroke patients with mild or moderate severity, not for chronic or long term disability disease. The perspective of this program emphasizes home-based rehabilitation with home modification that appropriate to context and patients' environment. Strategies to be used based on SCT and self-efficacy, problem and needs of individual difference.

1.1.2 **Technology**:

1. The Manual of home-based rehabilitation program for the patients and caregivers, that in older adults can be used easily with big letter and plain demonstrated picture. They can understand other patients 'experiences in the manual or CD that shows home modification of other stroke patients as well. The program was carefully designed to encourage self-efficacy to perform ADL activities, and ROM exercise.

2. The VDO or CD or DVD is nursing media that facilitate the

patients training in order to improve their ADL activities, and ROM exercise skill. It provided informative and consistency demonstration that the patients can easily follow and be used. They can stop and rewind when the question arise. These media were the useful media that extend nurse ability for caring stroke patients.

1.2 **Nursing system**: The intervention strategies used in these studies can guide nurses to interact with patients and their families more effectively. This model can be employed to guide communication within interdisciplinary teams. It can also be used to develop a clinical pathway for post stroke patients to improve quality of care. Nurse expertise should be extended to train other professional nurses to be a nurse specialist in delivery care of post stroke in the community, thus the effectiveness and the sustainability is the most important issue. The application of this program requires setting a goal in rehabilitation by interdisciplinary team before discharge from hospital. Attention and care are given at every stage and there is periodical evaluation to find out the result of the performance including looking at problems and obstacles of the performance what the causes are and whether there would be any way to solve the problems. Every stage of performance must be based on increase of patients and caregiver 'self-efficacy and outcome expectation

1.3 **Patients:** Patients and their caregivers are the key persons to this program. Self- efficacy and outcome expectation were strategies that the participants in the present study believed to help them put forth the effort to do ADL activities, and ROM exercise. Self monitoring and goal setting during the intervention sessions helped enhance the

participants ’self regulation. This process can be powerful in change behavior in case participants could think and motivate themselves in ways that were most relevant and specific for them. Family support in the present study was found to play an important role in helping post stroke exercise and do ADL activities. As there has not been wide support for rehabilitation and home health care in the health care delivery system in Thailand, family support may be an important resource for Thai elders. Jitapunkul et al.,(1993) found that for about three quarters of Thai elders, family’s member especially a daughter or a son were primary caregivers during an episode of illness. Therefore, in the present study, the intervention using strategies of nurse-patient and family interaction before discharge and at first follow-up coupled with family encouragement might enhance successful stroke rehabilitation.

1.3 **Setting context**: The program was developed and proposed to post stroke patients in their communities not only deserve for hospital setting. Hospital was the critical episode in patients ‘life threatening. Patients and their caregivers were in stress, and anxiety to patient‘s life. They had no self-efficacy, outcome expectation and concentration to attain the knowledge that health care providers provided for home discharge. After discharge from hospital to home, the situation was better, their patients was in a recovery period and can do more activity by themselves. It was normal psychological response to every one who was in the critical period. Application of this program requires continuity beginning with evaluation of patients ‘ problems in hospital up until returning home and through the period of each patients ‘rehabilitation including home modification which is the most important point of effective rehabilitation with

patients staying in their own home being suitably modified to cope with their disability. Environment or any facilities that can not modify would not suit the program.

2. Recommendation for Further Research

2.1 To confirm the effectiveness of behavior change intervention (SCT), this study should be partially replicated with random assignment of the subject to groups and needed to identify the rehabilitation phase on 4, 6, 12 months or longer. This will be helpful to alter an intervention to be more effective in helping post stroke patients to adopt the ADL activities and ROM exercise in living with strokes. Economic impact of the intervention in terms of a decrease in recurrent strokes (second stroke), complication after stroke , quicker recovery, and staff time and cost needed to implement such an intervention have yet to be identified. Moreover, to increase generalizability of findings from this study, repeated testing on intervention based on SCT is advisable with other population such as patients with a neurological disease with paralyze, low back pain or other health problems requiring behavior change for prevention or health promotion. The outcome expectation construct needs further investigation in sequence with self-efficacy to fully establish that they are mediating constructs for change activity and exercise and thus for functional status improvement.

Learning from the previous research and the present study, more intervention research related to ADL activities, and ROM exercise among paralyzed patients and older adults should be done to better develop and test nursing interventions that will promote health and prevent disability in the aging population.

Limitation of the study

The intervention designed in this study was more concerned about threats to internal validity by the selection of heterogeneous post stroke patients and specific for Thai post stroke patients, so the findings cannot be generalized to post stroke patients in other culture and setting. In the present study the participants were recruited by balancing between good control and real clinical practice situations. The medical practice in the hospitals, the communities of the participants and co-morbid diseases of post stroke patients could not be completely controlled. Thus confounding variables such as routine care of the participants' home in facilitating ADL activities, ROM exercise and massage might have affected the findings. However no significant differences in most dependent variables were found by demographic data (Table 4.1, 4.2, and 4.3).

For the present study, the investigator both conducted intervention and the measurement, that threat to internal validity. The reasons included: 1) impossibility for a co-researcher because of limitation research funding, 2) the investigator and home health care nurse with nurse-aid were the three health care providers who can go to the patients 'home because transportation was not convenient. 3) the nature of the scale that used in this study was considerably objective on Barthel Index and IADL The scale reflected the body function, physical signs and symptom. There were two instruments for perceived self-efficacy and outcome expectation that were subjective. Therefore, the measurements in this study are reliable enough to confirm the internal validity of the study. The single blind study is recommended in the further research.

Discussion

The purpose of this study was to propose the home-based rehabilitation program on post stroke patients. Study findings are discussed relative to current literature. Results of the study were discussed in two parts: 1) Home-based rehabilitation Program and 2) the contribution to nursing science.

Results of hypotheses testing supported the hypotheses as follow:

1. In both control and experimental groups, the mean score on Perceived self-efficacy at pretest and post test was significantly different. But on outcome expectation at pretest and post test was not significantly different.

The finding could be the effect of routine care from the hospital which was so intense that gave stronger efficiency of work more than other areas. Banphaeo Hospital was a general hospital and publicly organized, supervised by the Ministry of Public Health. It is a private organization under self management with partially financial support by the government with local representatives joining the administration.

2. At pre test and post test phase, the mean score on Perceived self-efficacy and outcome expectation of the control group was significantly lower than experimental group.

This problem could be the result of anxiety in the illness of their lovers to the point of life threatening. Therefore perceived self-efficacy can not create at that time and in the control group the participants did not establish perceived self-efficacy. But on Outcome expectation of the control group was not significantly lower than the experimental group which could be the result of long term care of 12 weeks, their effort

wore outcome expectation because they were the same caregivers who did not get any help in both groups.

3 The mean score on ADL and IADL between groups at posttest phase was not significantly different.

Other factors could stem from uncontrolled confounding factor such as; type of stroke (ischemic and hemorrhage), side of hemiplegia, onset to admission time and competency of caregiver, home environment factor in each group and recovery rate between two groups which affect the outcome variable of the program. Massage was well known and was used in almost every rural area that might be the reason why patients for control and experimental group received the same intervention which affected the outcome of physical functional status and the period of 12 weeks are too short to see physical change. These instruments were not sensitive in a short time they need long time to available the different.

Home-based rehabilitation Program

Dependent variables that were selected to propose home-based rehabilitation program was perceived self-efficacy and outcome expectation. Measurement of self-efficacy and outcome expectation was conducted by 4 instruments: 1) Perceived Self-efficacy, 2) Outcome Expectation, 3) ADL (Barthel Index), and 4) IADL (Chula ADL). All instruments were evaluated at 1stweek for pre test, and 12th for posttest.

Perceived Self-efficacy

Regarding hypotheses testing, in both control and experimental groups, the mean score on Perceived self-efficacy at pretest and post test was significantly different. And at pre test and post test phase the mean score on Perceived self-efficacy of control group

was significantly lower than experimental group and between groups was significantly different.

Self-efficacy is an important concept that is related to exercise and ADL activities in post stroke patients. Many studies have demonstrated that self-efficacy explained and predicted these activities among older adults(Clark,1999;Conn,1998;Dzwaltoski,1994;McAuley,Lox,& Duncan,1993; Resnick et al., 2000). Additionally, intervention study based on SCT found significant increase in self-efficacy for exercise in well older adults (Resnick,2002) and also self-efficacy for physical activity in older adults after cardiac surgery (Gilliss et al., 1993; Gortner&Jenkins,1990).

The present study supported the findings of this investigation in that a behavioral change intervention based on the SCT improved self-efficacy for ROM exercise in post stroke patients particularly in posttest phase week 12. The findings were in parallel with Resnick's(1996) that found an intervention based on SCT that could improve self-efficacy for participation in rehabilitation in older adults after orthopedic surgery. Other studies (Mihalko,1997;Resnick,2002) demonstrated that intervention based on the SCT improved self-efficacy for exercise in well older adults. These findings were also similar to those of Pellino,Tluczek, Collins,Trimborn, Norwick, Engelke, et al. (1998) who found that preoperative education based on the SCT could increase self-efficacy for the activities of pre and postoperative care in orthopedic patients ,including exercise and activities .

The mean score of degree of confidence (self-efficacy) to ADL activities, ROM exercise and massage in the experimental group was higher than the control group. The

intervention had affected post stroke patients and caregivers in the experimental group had more confidence than the control group. Self-efficacy theory suggested that people's belief in their abilities to perform specific behaviors, was an important predictor of how they were functioning in terms of choice behavior, effort expenditure and persistence, thought patterns and emotional reactions. In other words self-efficacy influence how people think, feel, motivate themselves, and activity. Self-efficacy thus contributes to the quality of psychosocial functioning in diverse ways (Bandura, 1977). Everyday people made decisions about what activities to pursue or to avoid. Decision involving choice of activities was influenced by judgments of self-efficacy. People tended to avoid tasks and situations they believe exceed their capabilities, while pursuing those they felt competent to perform(Bandura, 1977). Individuals who had a high level of self-efficacy were more persistent in the face of difficulties than those with a lower level of self-efficacy. Also, in case of failures or setback, people with low self-efficacy tended to give up or reduce their effort, whereas those with high self-efficacy generally intensified their efforts until they succeed (Bandura & Cervone, 1983).

In conclusion, perceived self-efficacy in their own ability is the motivation of patients and caregivers to continue on with their activities with their existing outcome expectation which leads to continuity of activities and develops physically in ADL activities, and ROM exercise causing improve physical functional status coupled with on going process of spontaneous recovery of stroke and patients can living independently in the context with their own environment.

Outcome Expectation

Regarding of hypotheses testing, in both control and experimental groups, the mean score on outcome expectation at the pretest and the post test was not significantly different. And the mean score on outcome expectation of the control group at pre test was no significantly lower than the experimental group. But the mean score on outcome expectation of the control group at the post test was significantly lower than the experimental group and between groups was significantly different.

Outcome expectations have previously been reported to be related to self-efficacy. Together with self-efficacy, and less influencing than self-efficacy, outcome expectation had been found to explain and predict exercise and physical activity behavior among older adult (Conn, 1998; Clark, 1999; Resnick et al., 2000; Resnick, 2001). Other studies (Jett et al., 1998; Resnick et al., 2000; Schneider, 1997; Schuster et al., 1995) supported outcome expectations as an important construct to explain exercise and physical activity among older adults.

Outcome expectations were defined by Bandura(1986) as judgments of the likely consequences such behavior will produce. In the present study, the experimental group had not significantly changed in Outcome Expectation for ADL activities, and ROM exercise Scores than the control group at 12 week from baseline levels. These findings similar to Resnick's (2002), in which older adults in the experimental group had stronger, but not significant outcome expectations than those receiving routine care. The findings of the present study differed from Resknick's(1996) earlier work in that the experimental group had significant outcome expectations in rehabilitation participation including the therapeutic exercise . This finding also indirectly supported Resnick's later work(2001),

in which outcome expectation had a significant direct effect on activity .Path analysis showed that the path between outcome expectations and activity was slightly stronger than the path between self-efficacy and activity.

The explanation for non-significant finding of Outcome Expectation for ADL activities, and ROM exercise Scale (OEARS) from baseline to week 12 in both control and experimental group may be due to the complication: shoulder pain, spasticity, or stiffness occurred when the time passed. That made them move and function with difficulty. They could not expect the outcome of exercise or ADL activities because they had no ADL activities, and ROM exercise or did ADL activities but no exercise because ADL was regularity of function of self care, but not to exercise. This finding was consistent with those of other investigators (Kaplan & Atkins,1984; Mihalko, 1997) who found that behaviors requiring specific training were more likely to be affected by the intervention than general behaviors. Although the spontaneous recovery affected both groups, the experimental group had awareness that the more they did ADL activities, and ROM exercise the more strength we can get. The home-based rehabilitation program provided massage as the pre exercise for relaxing spasticity and joint rigidity. Thai therapeutic massage was well known and was used in this area, post stroke patients in both control and experimental group had massage experiences at least one to five massage in 12 weeks. Some post stroke patients had massaged every day or two to three times a week. That was why the post stroke patients did not expect the outcome of exercise because of the thought of interchangeable of massage and exercise.

In summary, outcome expectation would lead to direction and control of behaviors which were believed to bring expected results. Without outcome expectation or only perceived self-efficacy there would not be any change. Both factors should coexist.

Physical functional status

Physical functional status was measured by ADL (Barthel Index) and IADL (Chula ADL). Regarding of hypotheses testing, in both control and experimental group, the mean score on ADL (Barthel Index) and IADL (Chula ADL) at pretest and post test was significantly different. But the mean score on ADL (Barthel Index) and IADL (Chula ADL) between control group and experimental group was not significantly different.

The explanation for non-significant finding of none significantly different was the environmental influences including health caregiver providers and family support were reported to help participants maintain their behavior. In Thai culture parents or elders need family support. They lived in an extended family more than 3-5 persons in family and help their parent do activities daily living. Family member or caregiver took good care for patients with love and hospitality. Family support was perceived to help promote ADL activities, and ROM exercise. These help from family was the barriers preventing the patients from doing ADL activities, and ROM exercise by themselves. ADL activities, and ROM exercise irregularly did not improve physiological capacity, physical functioning, and their satisfaction with their abilities to take care of themselves and increase shoulder pain and spasticity. Some elders had cognitive impairment caregiver was perceived to help them more, so the patients do nothing on ADL activities. When the patients had shoulder pain and spasticity they refuse to exercise more. This was the vicious cycle in rehabilitation.

Another explanation was the appropriated instrument; Barthel Index was not separate cognitive abilities from functional abilities. Post stroke patients had cognitive impairment.Similar to many nursing studies, ADLs continue to be used as indicators of functional ability (Morris et al. 1992; Kujawinski et al., 1993; Scanland & Emershaw, 1993; Grabbe et al., 1995; Hamilton & Lyon, 1995). Many studies in nursing which separate cognitive abilities from functional abilities use the Katz ADL scale (Katz & Lyerly, 1963) to measure a person's ability to perform five self-care activities: bathing, dressing, eating, walking and toileting.

The effectiveness of the Home-based rehabilitation program

Home-based rehabilitation program was the intervention developed by using theory-based Social Cognitive Theory (SCT) with emphasis on self-efficacy. The program focuses on personal, behavioral and environmental factors that influence self-efficacy (Bandura, 1986). The salient findings from the results of the program were as follow:

1. Allowing for great flexibility so that patients can tailor their program of rehabilitation and follow individual schedules.

2. Arrangements are often best suited for people who lack transportation and provides continuity of care and helps patients and families avoid the burden of transportation cost.

3. The major disadvantage of home-based rehabilitation programs is the lack of specialized equipment. Home modification was applied by making use of their resources in community for rehabilitation devices.

4. Undergoing treatment at home gives people the advantage of practicing skills and developing compensatory strategies in the context of their own living environment.

5. Increasing self-efficacy and outcome expectations was done in the home-based rehabilitation. These will be done through four sources of self-efficacy: 1) performance accomplishments; 2) verbal persuasion or encouragement from others; 3) social modeling or vicarious experiences; and 4) physiological states or cues (information).

6. The sample was taught self –monitoring by observing, evaluating and recording their activities and the barriers in the PFSD (physical functional status diary).

7. To influence the factor of family support, the researcher will educate participants about the common stroke related problems, prevention and management and discuss ADL rehabilitation and ROM exercise and massage with the patients and the care givers most participative in their recovery at home.

8. Group participants will also be given the information prompts regarding ADL rehabilitation and ROM exercise and massage that they will perform. These information prompts will be a pamphlet or digital media such as a CD, CVD, or DVD.

9. Providing the massage intervention for relieving pain, improves flexibility, reduces tension**,** and spasticity and increase ROM of shoulder in post stroke patients.

10. Providing the intervention which regains optimal physical functional ability of daily activities. This program continued rehabilitation in hospital up until returning home.

It can be concluded that this program has advantages in clarity of performance, continuity of the process, responsive to individual difference, motivation in performance of ADL activities, and ROM exercise based on perceived self-efficacy and outcome expectation ,home modification suitable for the present sufficient economy and save

expenses in supplying equipment for rehabilitation and in traveling of patients and caregivers.

The contribution to nursing science

The nursing profession has long viewed health promotion and disease prevention as an important component of its domain. Nurses continue to make major theoretical and empirical contributions to understanding the complexities of health related behavior. Nurses have played a leadership role in developing and testing the strategies to help individuals implement healthy lifestyles, often requiring difficult behavioral change. This study should be a valuable resource to other researchers who are studying self-efficacy and those who are developing interventions to enhance health lifestyles. It also demonstrates the fruitful results of collaboration among nurse scientists and interdisciplinary health care providers. Importantly, it reflects a pattern of cumulative knowledge building that is so essential to the advancement to nursing as a discipline and to effective nursing practice (Elizabet, 2002).

Profession support helps patients to adopt healthy behavior .The strategy used in the present study during the interactions between patients and family before they were discharged home, or during each follow-up was quite similar to those used in previous study (Allison, 2000; Gilliss, 1993; Gortner & Jenkins, 1990; Resnick, 1996) in that it was designed according to four sources of self-efficacy: master experiences, vicarious experiences, verbal persuasion, and physiological information.

In summary, the role of nurse in rehabilitation is the one in four components of nursing role: caring, prevention, promotion and rehabilitation with coordination of

various factors and components existing in patients and caregivers including external factors of environment in modifying their home to suit home-based rehabilitation

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APPENDICES

สถาบันวิทยบริการ
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APPENDIX A

Invention Protocol (IP)

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Intervention Protocol (IP)

Theory-based Intervention topic	**Phase 1 (intervention session ,after discharge to home) 1 st - 4 th week**	**Week**
Introduction week 1	The investigator introduced herself and told the objectives of the program to the patient and a family members.	
	Educated and discussed specific information on problem and needs assessment on stroke and its consequences, common stroke related prob and how to overcome these barriers, prevention and management of pres areas, continence, nutrition, positioning, gait facilitation and home modification.	1
	Nurse–patient discussion regarding success and failure of ADL Rehabilitationregimen, and explained the importance these activities (R exercise, lifting and handling techniques, facilitation of mobility and transfers, continence) and Thai therapeutic massage on physical functio status.	1
	Answered patients, family members and care givers ‘questions abo Rehabilitation and ROM exercise and massage regimen, and explained care giver the importance of their roles in encouraging the patient to engage in these activities.	1
Self-Monitoring Week 2-8	The investigator educated the patient and care giver to observe an in thePFSD (Physical Functional Status Diary), their performance (ho and how well they can do) and to identify their barriers to ADL rehab and ROM exercise and massage.	2-8
	1-2Educated the patient and care giver to record the frequency and i (repetition/time) of their ADL rehabilitation, ROM exercise, and massage barrier in their PFSD.	
	1-4Observed the patient ADL rehabilitation and doing ROM exercise a massage and encourages them that they had ability to perform these task From self-efficacy monitoring in PFSD, the investigator review Recorded activities, discusses these with the patients by asking the ques “Do you think you can do ADL rehabilitation and ROM exercise effectively and successfully?” If yes, “tell me more about what you did for ADL rehabilitation and ROM exercise” If no,” what are the barriers that prevent you from performing them? How can you overcome these barriers? ”	

Theory-based Intervention topic	**Phase 1 (intervention session ,after discharge to home) 1 st - 4 th week**	**Week**
	2-6 Discussed with the patients and care giver, the barriers preventi from doing ADL rehabilitation and ROM exercise. Massage provided giver to relieve pain and stiffness (spasticity) of the shoulder joint.	
	2-6 Explains that pain and stiffness may occur while they are doing rehabilitation and ROM exercise. Continuously and repeatedly will prevent stiffness. Massage will relieve pain and stiffness (spasticity) of the shoulder joint.	
Goal- setting week1-2	The investigator discusses with the patients and care giver, app goals of ADL rehabilitation, ROM exercise and massage in 1 st -8th wee at home. Goals: ADL rehabilitation every day and ROM exercise and massage 2 times per day, everyday. ADL rehabilitation and ROM exercise can be performed with the help from care giver or using a device.	
Family Support	The investigator informs the family and care giver ADL activitie exercise and massage rehabilitation and ROM exercise and massage r the benefit and physiological and emotional reactions that the patients might have to their regimens.	1-4
	Educates the care giver and family on the ADL rehabilitation exercise and massage and explains the importance of their roles in encouraging the patients to engage in these activities	1-4
	Answers the patients, care giver and family member's questions.	1-4

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Theory-based Intervention topic	**Phase 1 (intervention session ,after discharge to home) 1st - 8th week**	**Week**
External prompt	Regarding their loved one's ADL rehabilitation, ROM exerc massage (educates and discussion with care giver and family mem be given at the same time as with the patients)	1-8
	The investigator gives the information prompt about ADL rehabi and ROM exercise regimen.	1-8
Incentive motivator	Care giver and family are the key person to improve the physical Functional status of post stroke patients.	1-8

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Theory-based Intervention topic	**Phase 2 (intervention session ,after discharge to home) 9th -12th week**	**Week**
Introduction	On the 1st week the investigator give the patients and care giv PFSD for recording daily activity of the 1st -8 th week.	9
Self-monitoring	The investigator evaluates patient's activity participation from PFSD (Physical Functional Status Diary).	9
	Evaluates the correctness of their performance and educates the patients to perform ADL rehabilitation, ROM exercise and correctly.	9
-Performance accomplishment -Verbal persuasion -Vicarious experience - Physiological information	The investigator will leave information prompting via pamphlet, CD /VDO /DVD. and telephone number for discussing with the pati what factors help them to increase and maintain their ADL rehabilit ROM exercise and massage.	9-12
	Explained by phone that ADL rehabilitation and ROM exercise and massage is necessary to improve their physical functional status	9-12
	Explained by phone that if your barrier is pain and stiffness, massage will relieve the symptom of the shoulder joint.	9-12
Goal- setting	After the patient's explanation, the investigator assess whether or not the patients needs more education about their ADL rehabilita ROM exercise regimen. The investigator discusses with the patient and care giver appropriate goals for ADL rehabilitation, ROM exercise and massage in the phase post stroke 9th -12th week. Goals: ADL rehabilitation independently every day and ROM exercise with massage everyday. ADL and walking can be performed more independently or with the device.	9

Description of Follow up Phase 2

Theory-based intervention topic	**Phase 2 (follow up)** **9^{th} -12^{th} week**	**week**
Family Support	Ask the family to encourage the patient to do ADL rehabilitation, ROM exercise and massage.	9-12
	Discusses with the family the importance of their support and encoura of patient's ADL rehabilitation, ROM exercise and massage.	9-12
	Answers the care giver and family member's questions.	9-12
External prompt	The care giver and family member can use information prompt pamphlet, CD /VDO /DVD and telephone number for discussing w investigator to increase and maintain their ADL rehabilitation, ROM exercise and massage .	9-12
	The investigator left information prompt : ADL activities, ROM exercise and massage.	9-12
Incentive motivator	Care giver and family are the key person to improve the physical function status of post stroke patients.	9-12

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APPENDIX B

Invention Activity Checklist (IAC)

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Intervention Activity Checklist (IAC)

	Activity Session 1 (1st - 4th week)	**Yes**	**No**	**Remark**
1	Introduce myself, tell the objectives of study and discussion			
2	Problem assessment and needs identification			
3	Teach and discuss on stroke and its consequences, prevention management options and rehabilitation goal setting.			
4	Demonstrate information by power point presentation., manual booklet and CVD.			
5	Give manual booklet and CVD to patient and care giver to revise ADL activities, ROM exercise and massage at home.			
6	Teaching and discuss with patient and family - focus on the benefits of ADL activities, ROM exercise and massage on physical functional status.			
7	Answer patients' questions.(Record question)			
8	Discuss and demonstrated by picture, with the patient and care giver on home modification : one or two- side rail , pulley, slope way, bed and chair for stroke.			
9	Discuss with the patient the success and failure of their ADL activities, ROM exercise and massage in this phase.			
10	Discuss with the patient the barriers that prevent them from doing significantly activity.			
11	Discuss and informal instruction on facilitating transfers, mobility and activities o daily living tasks and ROM exercise and massage.			
12	Discussion and teach regarding shoulder joint pain and how to control pain.			
13	Encourage and persuade the patient and care giver that they have ability to ADL activities, ROM exercise and massage.			

	Activity	Yes	No	Remark
14	Inform family and care giver of patients' exercise and ADL activities regimen,he benefits and psychological reactions to their regimen that the patient might have.			
15	Inform the patient and care giver regarding their roles in helping the patient toADL activities and ROM exercise and massage and engage in physical functional status.			
16	Answer the family member's question (Record question)			
17	Teach the patient how to observe their ADL activities and ROM exercise and massage (how many time and how well) and to identified thei barriers.			
18	Evaluate their ADL activities and ROM exercise and massage and teach the patient to perform exercise correctly.			
19	Teach the patient to record the frequency, duration and level of assistance of activities in Physical Functional Status Diary (PFSD)			
20	Set goals with the patient and care giver .Record the goals we have set.			
21	Give the PFSD to record for the following week.			

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Session 2 (5^{th} - 12^{th} week)

	Activity	Yes	No	Remar
1	Evaluate the patient‘s participation from PFSD.			
2	Discuss with the patient and care giver regarding their ADL activities, ROM exercise and massage by these questions; -What is the benefit of your ADL activities and ROM exercise and massage -Do you think you can do ADL activities and Exercise effective successfully? If yes, tell me more what you did for ADL activities and Exercise and how you control yourself to do regularly? If no, what were barriers and how did you overcome these barriers?			
3	After the patient ‘s explanation, assess whether or not the patient needs Reinforcement teaching about ADL activities and Exercise.			
4	Discuss the benefit of ADL activities and exercise			
5	After the patient‘s explanation regarding the benefit, encourage them to continue the regimen effectively.			
6	Answer patients’ questions.(Record question)			
7	Ask the family member to encourage the patient to do exercise and ADL activities			
8	Discuss with the family member the importance of their support in encoura The patients’ ADL activities and exercise			
9	Answer the family members’ and patients’ questions. (Record question)			
10	Give the patient PFSD to record daily activities and exercise for the following week. Emphasize the importance of their self-observation, regula and their record of their activities.			
11	Do they meet the goal for session1?			
12	Discuss the goals for the next phase.			
13	Give information prompt.			

APPENDIX C

Instrumental Scale

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เครื่องมือการวิจัยสำหรับผู้ป่วยโรคหลอดเลือดสมอง

รหัสผู้ป่วย......อายุ.....ปี รับไว้ในโรงพยาบาล.....

วินิจฉัยโรค / วันที่.....( )หลอดเลือดแตก ( ) หลอดเลือดตีบ

อาการสำคัญ.....

ผลการตรวจร่างกาย

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ความก้าวหน้าในการฟื้นฟูสภาพ.

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<u>ส่วนที่ 1</u>

1. แบบบันทึกข้อมูลส่วนบุคคลผู้ป่วยโรคหลอดเลือดสมอง

คำชี้แจง ให้ผู้สัมภาษณ์ถามผู้ป่วยโรคหลอดเลือดสมองแต่ละข้อเกี่ยวกับข้อมูลส่วนบุคคลและทำเครื่องหมาย / ลงในวงเล็บ ( ) หน้าข้อความหรือเติมคำในช่องว่างตามที่ผู้ป่วยตอบแบบสัมภาษณ์ที่ตรงกับความเป็นจริง

1. ปัจจุบันท่านอายุ…ปี ( ) 40-50 ( )51-60 ( ) 61-70 ( ) 71-80 ( ) 81-90 ( ) 91-100 [ ] A1.1
2. เพศ ( ) ชาย ( ) หญิง [ ] A2.2
3. ศาสนา ( ) พุทธ ( ) คริสต์ ( ) อิสลาม ( ) อื่นๆระบุ..... [ ] A2.3
4. สถานภาพสมรส ( ) โสด ( ) คู่ ( ) หม้าย / หย่า / แยกกันอยู่ [ ] A2.4
5. ……..

แบบบันทึกข้อมูลส่วนบุคคลของผู้ดูแลผู้ป่วยโรคหลอดเลือดสมอง

คำชี้แจง ให้ผู้สัมภาษณ์ถามผู้ดูแลผู้ป่วยโรคหลอดเลือดสมองแต่ละข้อเกี่ยวกับข้อมูลส่วนบุคคลและทำเครื่องหมาย / ลงในวงเล็บ ( )หน้าข้อความหรือเติมคำในช่องว่างตามที่ผู้ดูแลตอบแบบสัมภาษณ์ที่ตรงกับความเป็นจริง

1. ปัจจุบันท่านอายุ…ปี ( ) 10-20 ( ) 21-30 ( ) 31-40 ( ) 41-50 ( ) 51-60 ( ) 61-70 ( ) 71-80 [ ] B1.1
2. เพศ ( ) ชาย ( ) หญิง [ ] B1.2
3. ศาสนา ( ).พุทธ ( ) คริสต์ ( ) อิสลาม ( ) อื่นๆ [ ] B1.3
4. สถานภาพสมรส ( ) โสด ( ) คู่ ( ) หม้าย / หย่า / แยกกันอยู่ [ ] B1.4
5. ……..

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<u>ส่วนที่ 2</u> เครื่องมือสำหรับคัดกรองผู้ป่วยเข้าสู่โปรแกรม

2.1 เครื่องมือประเมินสุขภาพจิตจิตทั่วไป ใช้ แบบทดสอบสภาพจิตจุฬา(Chula Mental Test CMT)

	คำถาม	คำตอบ	คะแนน	ในรพ ก่อน D/C	ครั้งที่ 1 วันที่....	ครั้งที่ 2 วันที่....	ครั้งที่ 3 วันที่....
1	ปีนี้คุณอายุเท่าไร?		1 / 0				
2	ขณะนี้กี่โมง? (อาจตอบคลาดเคลื่อนได้ 1 ชั่วโมง)		1 / 0				
3	พูดคำว่า “ร่ม กะทะ ประตู “ให้ฟัง ช้าๆ ชัดๆ 2 ครั้ง แล้วบอกให้ผู้ถูกทดสอบทวนชื่อทั้งสามดังกล่าวทันที (ชื่อที่ถูก 1 ชื่อ=1 คะแนน)	ร่ม กะทะ ประตู	1 / 0 1 / 0 1 / 0				
4			1 / 0				
5			1 / 0 1 / 0				
6			1 / 0				
7			1 / 0				
8			1 / 0				
9			1 / 0				
10							
11							
12							
13							
	รวมคะแนน ผู้ประเมิน						

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2.2 เครื่องมือประเมินความรุนแรงของโรค ใช้ แบบประเมิน NIHSS STROKE SCALE

<u>คำชี้แจง</u> โปรดใส่คะแนนในช่องภายหลังประเมินสภาพของผู้ป่วยแต่ละครั้ง

	หัวข้อประเมิน		ในรพ ก่อน D/C	ครั้งที่ 1 วันที่.... .	ครั้งที่ 2 วันที่.... .	ครั้งที่ 3 วันที่.... .	ครั้งที่ วันที่....
1	1a ระดับความรู้สึก						
	0	รู้สึกตัวปกติตอบสนองได้ดี					
	1	ปลุกตื่นด้วยการกระตุ้นเพียงเบาๆตอบคำถามได้					
	2	ปลุกตื่นแต่ต้องใช้กระตุ้นรุนแรงหรือกระตุ้นซ้ำๆ					
	3	ไม่ตอบสนองหรือตอบสนองโดย reflex					
	1b ถาม ”เดือน” และ ”อายุ” ใช้คำตอบแรกที่ผู้ป่วยตอบ						
	0	ตอบได้ถูกทั้งสองคำถาม 1 ตอบถูกหนึ่งคำถาม 2 ตอบไม่ถูกเลย					
	1c ให้หลับตา ลืมตาและ กำมือ แบมือ						
	0	ทำได้ถูกทั้งสองอย่าง 1 ทำถูกหนึ่งอย่าง 2 ทำไม่ถูกเลย					
2	การกลอกตา ให้ผู้ป่วยกลอกตาไปมา มองซ้ายขวา ขึ้นบนลงล่าง						
	0	กลอกตาได้ทุกทิศทาง					
	1	มีความผิดปกติในการกลอกตา อาจเป็นข้างหนึ่งข้างใดก็ได้					
	2	กลอกตาไม่ได้เลยหรือตามองไปด้านใดด้านหนึ่งตลอดเวลา					
3							
	0						
	1						
	2						
	3						
11							
	0						
	1						
	2						
	3.						

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<u>ส่วนที่ 3.</u> เครื่องมือสำหรับประเมินผลที่ได้จากโปรแกรม

3.1 . การประเมินสภาพการทำงานของร่างกาย

3.1.1 แบบประเมินกิจวัตรประจำวันโดยใช้ดัชนีบาร์เธลเอดีแอล (Barthel ADL Index)

หัวข้อประเมิน			ใน รพ ก่อน D/C	ครั้งที่ 1 วันที่ …..	ครั้งที่ 2 วันที่ …..	ครั้งที่ 3 วันที่ …..	ครั้งที่ 4 วันที่ ….
1.	Feeding (รับประทานอาหารเมื่อเตรียมสำรับไว้ให้เรียบร้อยต่อหน้า)						
	0.	ไม่สามารถตักอาหารเข้าปากได้ต้องมีคนป้อนให้					
	1.	ตักอาหารได้เองแต่ต้องมีคนช่วย เช่นช่วยใช้ช้อนตักเตรียมไว้ให้หรือตัด เป็น ชิ้นเล็กๆไว้ล่วงหน้า					
	2	ตักอาหารและช่วยตัวเองได้เป็นปกติ					
2.	Grooming (ล้างหน้า,หวีผม, แปรงฟัน, โกนหนวดในระยะ 24-48 ชั่วโมงที่ผ่ามา)						
	0	ต้องการความช่วยเหลือ					
	1	ทำได้เอง (รวมทั้งที่ทำได้เองถ้าเตรียมอุปกรณ์ไว้ให้)					
3							
4.							
5.							
6.							
7.							
8							
9							
10							
11							
12							
13							

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3.1.1 ดัชนีจุฬาเอดีเอล (Chula ADL)

หัวข้อประเมิน			ในรพ ก่อน D/C	ครั้งที่ 1 วันที่.... .	ครั้งที่ 2 วันที่.... .	ครั้งที่ 3 วันที่.... .	ครั้งที่ 4 วันที่ ....
1.	walking outdoor (เดินหรือเคลื่อนที่นอกบ้าน)						
	0	เดินไม่ได้					
	1	ใช้รถเข็น					
	2	ต้องการผู้ช่วยพยุงหรือไปด้วยตลอด					
	3	เดินได้เอง (รวมทั้งที่ใช้เครื่องช่วยเดินเช่น walker)					
2							
	0						
	1						
	2						
3.							
	0						
	1						
4 .							
	0						
	1						
5.							
	0						
	1						
	2						
		รวมคะแนน					
		ผู้ประเมิน					

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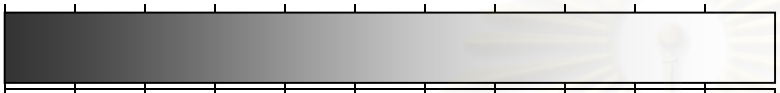
3.1.3 แบบประเมินการฟื้นตัวของผู้ป่วย (Fugl-Meyer assessment for Stroke form)

รายการ			คะแนน	ก่อน D/C	ครั้งที่ 1 วันที่ ….	ครั้งที่ 2 วันที่ ….	ครั้งที่ 3 วันที่ ….	ครั้งที่ 4 วันที่ …
ช่วงแขน (Upper Extremities)								
A	1.	Shoulder/ Elbow/ Forearm ความตื่นตัวของมัดกล้าม (Reflex-Activity)						
		ด้านงอศอก (Biceps)	0-2					
		ด้านเหยียดศอก (Triceps)	0-2					
	2.	**a** หัวไหล (นั่งห้อยแขนข้างตัว กางแขน หงายมือออก ศอกตรง แล้วงอศอกมาจับหูตัวเองแขนจะอยู่ในท่ากาง งอศอก)						
		หัวไหล่ ยืด สะบัก	0-2					
		ยกแขน	0-2					
		กางแขน	0-2					
		หมุนข้อไหล่ออก	0-2					
		ข้อศอก งอศอก	0-2					
		แขนช่วงล่าง หงายมือ	0-2					
		b ท่าเริ่มต้น นั่งงอศอกแตะหัวไหล่ข้างดีเหยียดศอกมือคว่ำบนเข่าข้างดี						
		หัวไหล่ หุบแขนหมุนหัวไหล่เข้า	0-2					
		ข้อศอก เหยียดศอก	0-2					
		แขนช่วงล่าง คว่ำมือ	0-2					
	3		0-2					
			0-2					
			0-2					
	4.		0-2					
			0-2					
			0-2					
	5.		0-2					
ผลรวม A			**36**					

( ) กลุ่มทดลอง ( ) กลุ่มควบคุม

3.1 แบบประเมินความเจ็บปวดของข้อไหล่ (Shoulder Joint Pain Scale SPS)

<u>คำชี้แจง</u> ให้ผู้ป่วยประเมินความเจ็บปวดของข้อไหล่ตามหัวข้อต่อไปนี้

ความเจ็บปวด	ในรพ ก่อน D/C	ครั้งที่ 1 วันที่.... .	ครั้งที่ 2 วันที่.... .	ครั้งที่ 3 วันที่.... .	ครั้งที่ 4 วันที่ ....
1. ความรุนแรงของความเจ็บปวด (severity)  100 90 80 70 50 60 40 30 20 10 0 มาก ปานกลาง น้อย ไม่มี .					
2					
3.					
4.					
รวมคะแนน					
ผู้ประเมิน					

หมายเหตุ

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3.1. แบบประเมินอาการเกร็งของกล้ามเนื้อข้อไหล่ (Modified Ashworth Scale MAS)

ระดับคะแนน เป็นการวัดแรงต้านต่อการจับข้อให้เคลื่อนไหว		ในรพ ก่อน D/C	ครั้งที่ 1 วันที่.... .	ครั้งที่ 2 วันที่.... .	ครั้งที่ 3 วันที่.... .	ครั้งที่ 4 วันที่ ....
0	ความตึงตัวของกล้ามเนื้อไม่เพิ่มขึ้น					
1	ความตึงตัวของกล้ามเนื้อเพิ่มขึ้นเล็กน้อยทำให้เกิดแรงต้านเวลาขยับข้อเร็วๆ หรือแรงต้านเฉพาะช่วงสุดท้ายขององศาการเคลื่อนไหว					
1+						
2						
3						
4						
	รวมคะแนน					
	ผู้ประเมิน					

ข้อแนะนำ

1 ห้ามให้คะแนนแบบก้ำกึ่ง

2 ถ้าให้คะแนนหลายคนต้องทดสอบเกณฑ์การให้คะแนนให้เหมือนกันก่อนเริ่มทำการศึกษา

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บันทึก

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3.4 แบบประเมินการรับรู้สมรรถนะแห่งตนของผู้ป่วยโรคหลอดเลือดสมองต่อการปฏิบัติกิจกรรมในโปรแกรมการฟื้นฟูสภาพที่บ้าน

(Perceived Self-efficacy for Stroke Home-based Rehabilitation Program)

คำชี้แจง ข้ อความต่อไปนี้เกี่ยวข้องกับการปฏิบัติกิจกรรมต่างๆของท่านกรุณาเลือกระดับของความมั่นใจ ในการปฏิบัติกิจกรรมต่างๆตามการรับรู้ของท่าน

	กิจกรรม	ในรพ ก่อน D/C	ครั้งที่ 1 วันที่....	ครั้งที่ 2 วันที่....	ครั้งที่ 3 วันที่....	ครั้งที่ 4 วันที่.....
ก. กิจวัตรประจำวัน						
1	การรับประทานอาหารและดื่มน้ำ - การตักอาหารเข้าปากและการกลืน					
	- การยกแก้วน้ำดื่มและการกลืน					
2	การแต่งตัว (การใส่ ถอด เสื้อและกางเกง รองเท้า การติดกระดุม รูดซิป ผูกเชือกรองเท้า)					
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1 น้อยที่สุด หมายถึง ท่านมีความคาดหวังในการทำกิจกรรมต่างๆในระดับน้อยที่สุด
2 น้อย หมายถึง ท่านมีความคาดหวังในการทำกิจกรรมต่างๆในระดับน้อย
3 ปานกลาง หมายถึง ท่านมีความคาดหวังในการทำกิจกรรมต่างๆในระดับปานกลาง
4 มาก หมายถึง ท่านมีความคาดหวังในการทำกิจกรรมต่างๆในระดับมาก
5 มากที่สุด หมายถึง ท่านมีความคาดหวังในการทำกิจกรรมต่างๆในระดับมากที่สุด

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ส่วนที่ 4 เครื่องมือกำกับการทดลอง

4.1 แบบวัดความคาดหวังต่อภาวะการทำงานของร่างกายจากการปฏิบัติกิจวัตรประจำวัน การออกกำลังกายและการนวด

(OEFA SCALE: Outcome Expectation for Functional Activities Scale, Exercise Scale and Massage Scale)

คำชี้แจง ท่านมีความคิดเห็นเกี่ยวกับข้อความนี้มากน้อยเพียงใด

กิจกรรมและระดับคะแนน		ใน รพ ก่อน D/C	ครั้งที่ 1 วันที่ ….	ครั้งที่ 2 วันที่ ….	ครั้งที่ 3 วันที่ ….	ครั้งที่ 4 วันที่ …..
1 น้อยที่สุด หมายถึง ท่านมีความคาดหวังในการทำกิจกรรมต่างๆในระดับน้อยที่สุด 2 น้อย หมายถึง ท่านมีความคาดหวังในการทำกิจกรรมต่างๆในระดับน้อย 3 ปานกลาง หมายถึง ท่านมีความคาดหวังในการทำกิจกรรมต่างๆในระดับปานกลาง 4 มาก หมายถึง ท่านมีความคาดหวังในการทำกิจกรรมต่างๆในระดับมาก 5 มากที่สุด หมายถึง ท่านมีความคาดหวังในการทำกิจกรรมต่างๆในระดับมากที่สุด						
1	การอาบน้ำและการแต่งตัวด้วยตนเองเป็นการเพิ่มความแข็งแรงและความสามารถของข้าพเจ้า					
2	การฝึกเคลื่อนย้ายจากเก้าอี้ หรือรถเข็นขึ้นลงเตียงเป็นการเพิ่มความแข็งแรงและความสามารถของข้าพเจ้า					

4.2 แบบบันทึกกิจกรรมประจำวันสำหรับผู้ป่วยและผู้ดูแล

4.2.1 คำชี้แจง ข้อต่อไปนี้สำหรับผู้ดูแลประเมินตนเองว่าได้ทำกิจกรรมใดให้ผู้ป่วยบ้างและมีระดับความมั่นใจเพียงใด

รายการ			ในรพ ก่อน D/C	ครั้งที่ 1 วันที่…. .	ครั้งที่ 2 วันที่…. .	ครั้งที่ 3 วันที่…. .	ครั้งที่ 4 วันที่ ….
1. การป้องกันอาการแทรกซ้อนต่างๆ							
2 การบริหารจัดการเรื่องการจัดท่ากิจวัตรประจำวันและการออกกำลังกายและการนวด							
	1	การจัดท่าต่างๆให้ผู้ป่วย					
	2	การรับประทานอาหารและดื่มน้ำ					
	3	การอาบน้ำ					
	4	การถอดใส่เสื้อกางเกงหรือผ้านุ่ง และรองเท้า					
	10						
3. การติดต่อแหล่งสนับสนุนอื่นๆเพื่อขอความช่วยเหลือ							
		รวมคะแนน					
		ผู้ประเมิน					

4.2.2. **<u>คำชี้แจง</u>** กิจกรรมต่อไปนี้เป็นสิ่งที่ท่านและผู้ป่วยสามารถปฏิบัติได้ทุกๆวัน กรุณาบันทึกสิ่งที่ปฏิบัติหรือไม่ปฏิบัติ จำนวนครั้งต่อวัน จำนวนรอบในแต่ละครั้ง ระดับความต้องการความช่วยเหลือ อุปสรรคในการการจัดท่าทาง การเคลื่อนย้าย การออกกำลังกายและการนวด และการปฏิบัติกิจวัตรประจำวัน

กิจกรรม		ทำ/ไม่ได้ทำ	ทำวันละกี่ครั้ง	ทำครั้งละกี่รอบ	ระดับความช่วยเหลือ 0 = ทำด้วยตนเองทั้งหมด 1 = ผู้ดูแลช่วยบ้างเล็กน้อย 2 = ผู้ดูแลช่วยเป็นส่วนมาก 3 = ผู้ดูแลทำให้ทั้งหมด	ปัญหาและอุปสรรคที่เกิดขึ้น 0 =ไม่มี 1 = เจ็บปวด 2 = อ่อนล้า 3 = อื่นๆระบุ.....
1 การจัดท่า						
	ท่านอนหงาย					
	ท่านอนตะแคง					
	ท่านั่ง					
	ท่ายืน					
	ท่าเดิน					
4.การออกกำลังกายโดยผู้ป่วยทำเอง						

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APPENDIX D

Summary of the Literature of Stroke Research on Rehabilitation

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Efficacy of Hospital-Based Outpatient Rehabilitation versus Routine Care

Author, Year Country	Methods	Outcomes
Smith et al. 1981 Australia 5 (RCT)	133 stroke patients were randomized to receive one of three treatments following discharge from inpatient rehabilitation; 1) intensive outpatient rehabilitation, provided for 4 full days, 2) conventional rehab, provided for three *Vi* days /week and 3) no continued rehabilitation, although they were visited by a "health visitor" on a regular basis. Patients received up to 6 months of therapy.	At both 3 month and 12 month review, patients in the intensive group had better disability scores than those receiving conventional rehab, who in turn had better scores than patients receiving no additional rehabilitation. The greatest gains were achieved in the first three months.
Marsh 1984 USA No Score	90 stroke patients participated in a day rehabilitation program for 6 hrs/day, several times /week incorporating physiotherapy (PT), occupational (OT) and speech-language (SL) therapy, as required.	Patients spent an average of 5 months in the program. As a group, patients experienced statistically significant improvement in scores from admission to discharge from the program. Evaluation included 6-point ordinal OT and PT scales and a 15-polnt ordinal SL scale.
Tangeman et al. 1990 USA No Score	40 stroke patients, at least one-year post stroke participated in a 5 week rehabilitation program, consisting of 2 hours of individual OT and PT therapy provided 4 days a week with group discussion and activities designed with recreational therapist on day 5. Therapy emphasized instruction in motor planning, balance and weight shift and the use of adaptive equipment. The motor abilities were then practised within real life situations.	A significant improvement in weight shift, balance control, and in ADL scores after the one-month rehabilitation program and retained skills acquired during a three-month follow-up period.

Author, Year Country	Methods	Outcomes
Davidoff et al. 1991 USA No Score	The ADL scores of 139 "middle-band" stroke patients who had received inpatient rehabilitation were recorded. Patients were admitted for initial rehabilitation for less than 45 days post stroke and were discharged to a private residence or senior adult care setting, excluding nursing homes or extended care facility. Patients were divided into two groups on the basis of whether or not they had received outpatient therapy services more than 90 days after discharge from rehabilitation.	There was a significant improvement in the modified Kenny self-care scale between stroke onset, discharge from rehab and follow-up. There was significant improvement in ADL scores from rehab discharge to follow-up in a subset (n=51) of patients who also received outpatient therapy
Hui et al. 1995 China 5 (RCT)	128 elderly patients with acute stroke were randomized to inpatient care on a stroke ward under the care of either a neurologist or a geriatric team. Those under the care of neurologists were hospitalized until the attending physician felt that the patients had reached full rehabilitation potential. Patients under the care of the geriatric team were discharged home as soon as the team felt they were able to cope and given follow-up rehabilitation at the day hospital. Family or community support was arranged when necessary for both treatment groups	There were no differences in the mean Bl scores between the two groups at either 3 or 6 months follow-up. However, there was significantly greater improvement in scores from 0-3 months, There were also no differences in assessments of patients' well-being, sleep problems or depression

Author, Year Country	Methods	Outcomes
Werner and Kessler 1996 USA 6 (Single-blind RCT)	49 stroke patients, at least one year post stroke were randomized to receive either an intensive 12 weeks rehabilitation therapy for 1 hour a day for 4 days a week, or received no rehabilitation therapy (control).	Significant improvement on FIM-MM score were noted at 3 months for the treatment group; however no significant differences in FIM-MM gains were observed between the 2 groups from 3 to 9 months. A significant decline in Sickness Impact Profile (SIP) scores was observed in the treatment group at 3 months.
Hershkovitz et al. 2004 Israel No Score	A prospective study of a cohort of 207 elderly stroke patients admitted to a day hospital program for an average length of six weeks. Most patients were referred from inpatient programs, although some were recruited directly from the community.	London Handicap Scores (LHS) at discharge had significantly improved from a mean of 11.3 on admission to 8.9 at discharge. The overall change in LHS score was 2.3 points (20%), corresponding to an effect size 0.43. Multiple linear regressions failed to identify a good predictor for the discharge score of LHS.

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APPENDIX E

Patients Information Sheet

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Home Therapy vs. Routine or No Care (within 6 months of stroke)

Author, Year, Country	Methods	Outcomes
Wade et al. 1985 UK No Score	Of 857 stroke patients, 440 patients received 6 months of home care service and 417 patients received no home care services. Patients allocated to groups based on nursing units.	Patients were assessed within 7 days of the stroke, if possible. At 6 mos there were no differences in Bl scores, depression scores or carer stress between the 2 groups
Corr and Bayer1995 UK 6 (RCT)	110 stroke patients were randomized immediately following hospital discharge to either the intervention group receiving further rehabilitation at home by an occupational therapist based on the model of human occupation in addition to any other follow-up services arranged or to the control group that received no special intervention or follow up, although they could receive any available services as required	More patients in the intervention group than in the control group were independent in feeding and using the telephone as assessed by the Nottingham Extended ADL Index.
Forster and Young 1996 UK 6 (RCT)	240 patients were randomized to receive visits by specialist outreach nurses over 12 months to provide information, advice and support with a minimum of 6 visits during the first 6 months or to a control group that did not receive nurse visits. Patients entered the trial either before discharge home from hospital or within 6 weeks of stroke if not hospitalized initially.	Mildly disabled patients (Barthel Index 15 to 19) who received nurse visit experienced significantly greater improvement on social outcomes at 6 and 12- month follow up compared to control. No significant differences in Bl scores between the groups

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Author, Year, Country	Methods	Outcomes
Walker & Drummond 1996 UK 6 (crossover RCT)	30 stroke patients living at home experiencing difficulty with dressing 6 months following stroke were studied. Patients received regular dressing practice by a senior OT in their home for 3 months followed by 3 months of no intervention. 15 patients were randomized to receive assistance for 3 months followed by no assistance (group 1) and 15 patients received no assistance, followed by assistance (group 2).	Group 1 showed significant improvement in dressing during treatment phase with gains maintained during the control phase. Group 2 significantly improved in dressing during the treatment phase. Group 1 improved significantly over the treatment phase on the ADL self-care section with gains maintained after the non-intervention period. Group 2 showed significant improvement in ADL scores with treatment
Goldberg et al. 1997 USA 5 (RCT)	55 patients randomized to receive either the STAIR program (Stroke Transition After Inpatient Rehabilitation) or a control group receiving standard care, within 2-3 mos following stroke. The STAIR program was a model of care developed to improve post discharge services to stroke survivors and care givers.	Significant improvement was noted on the Functional Independence Measure and Frenchay Activities Index from baseline to 1 year follow-up of the entire sample. No between group comparisons were reported
Logan et al. 1997 UK 8 (RCT)	111 stroke patients who had been discharged home and been referred to the Social Service occupational therapy department were randomized to receive either enhanced home therapy or regular service	At 3 mos the patients in the enhanced therapy group had significantly higher EADL scores compared to patients receiving usual care. At 6 months there were no differences between the groups on any of the outcome measures
Walker et al. 1999 UK 7 (RCT	185 stroke patients randomized to receive either up to 5 months of occupational therapy at home or to receive no intervention (control group) 1-month after their stroke	Patients receiving home occupational therapy demonstrated significantly better median scores than control subjects on the EADL scale, Barthel Index, the Carer Strain Index (CSl) and on the London Handicap Scale (LHS).

Author, Year, Country	Methods	Outcomes
Andersen et al. 2000 Denmark 8 (RCT)	155 stroke patients randomized to one of three home-based therapy groups: 1) Patients in control group received standard aftercare that did not include follow-up home visits; 2) The physician intervention group consisted of three 1-hour home visits after discharge at week 2, 6 and 12 (INT1); 3) home-based physiotherapist intervention during a 6 week period immediately after discharge (INT2).	Readmission rates within 6 months after discharge were significantly lower in the intervention groups than in the control group: INT1 (26%), INT2 (34%), and control (44%).
Gilbertson et al. 2000 UK 8 (RCT)	138 stroke patients, who planned to return home following discharge from hospital were randomized to receive either 6 weeks of domiciliary occupational therapy comprising 10 x 30 to 45 min visits, tailored to recovery goals identified by patient or to receive routine post-stroke follow-up care.	At 8 weeks.24% of patients in the intervention group experienced a poor global outcome compared to 42% of routine care patients. At 8 weeks, domiciliary care patients' Nottingham Extended ADL scores were significantly higher than the routine
Gilbertson and Langhorne 2000 Scotland 8 (RCT)	Same patients studied from Gilbertson et al. 2000.	Home- based therapy group demonstrated significantly greater changes on Canadian Occupational Performance Measure and satisfaction scores between discharge and 7 weeks. Home- based therapy group exhibited better scores on emotional section of the COOP charts and the occupation (work/leisure) subsection of the LHS at 7 weeks. At 6 months follow up, home- based therapy patients were more likely to report satisfaction with preparation for home at discharge, the quantity of information received about rehabilitation and recover and having a contact person regarding problems relating to their stroke.

Author, Year, Country	Methods	Outcomes
Wolfe et al. 2000 UK 7 (RCT)	43 patients not admitted to hospital following stroke were randomized to receive either usual community care or home treatment care by a rehabilitation team. Unclear at what point post stroke onset patients were entered into the study.	No significant differences were found between groups on any of the outcome measures including Barthel Index, Nottingham Health Profile, Motricity Index (MI), Mini-Mental State Exam (MMSE), Albert Test, Rivermead Activities of Daily Living (RDL), Frenchay Aphasia Screening Test or the 5m timed walk.
Evans and Hendricks 2001 USA 4 (RCT)	180 patients who were discharged from inpatient rehabilitation for a variety of disabling conditions (stroke 22%) were randomized to receive either subacute rehabilitation at home for two months or routine care (primary medical care only	No significant differences were found between the two groups on any of the outcomes measures including: FIM, SF-36, Personal Adjustment and role skills (PARS), Mental Health Index (MHI) or Social Support Questionnaire (SSQ)
Parker et al. 2001 UK 6 (RCT)	A multicentre trial of 466 stroke patients randomized to three groups. Two treatment groups received OT intervention at home for up to 6 months with a minimum of 10 sessions lasting not less than 30 min. ADL group treatment goals were set in terms of improving independence in self care tasks. Leisure group goals were set in terms of leisure activity and intervention included practising the leisure activity and the ADL task required to achieve the leisure objectives. Control group received no therapy treatment.	No significant differences were found between groups on any of the outcome measures including the General Health Questionnaire (GHQ), Nottingham Extended ADL Scale, Nottingham Leisure Questionnaire, International Stroke Trial Outcome Questions, Barthel Index or London Handicap Scale (LHS).
Walker et al. 2001 UK 7 (RCT)	1 -year follow-up from 1999 study. 185 patients initially randomized to receive either OT intervention in the home or no treatment. 147 patients were reassessed	The median Nottingham EADL scores of the patients receiving therapy were significantly higher than those who did not receive therapy
Anderson et al. 2002 Denmark 7 (RCT)	Additional analyses from 2000 study, reporting on the functional outcomes of patients 6 mos. Post discharge.	No statistically significant differences in any of the outcome measurements were found (Functional Quality of Movement Scale, Frenchay Activity Index, Index of Extended Activities of Daily Living).
Green et al. 2004 UK No Score	Pooled analysis from Wade et al. (1992) & Green et al. (2002). The number of physiotherapy sessions patients received in each of the treatment conditions were the same (mean of 4 and 5 visits).	264 patients were included in the combined analysis.

Author, Year, Country	Methods	Outcomes
Ricauda et al. 2004 Italy 7 (RCT)	120 elderly, acute patients with uncomplicated first-ever stroke were randomized to either inpatient care on a general medical ward or to Geriatric Home Hospitalization Services (GHHS) and followed for 6 months.	There was no difference in mortality rates of improvement in functional outcome, measured by FIM at the end of follow-up. Home treated patients had better depression scores, measured by the Geriatric Depression Scale score, were more likely to remain at home and had fewer medical complications.
McClellan & Ada 2004 Australia 8 (RCT)	26 patients with residual deficits following discharge from physiotherapy services were randomized to an experimental group, a 6 week home-base mobility program, or to a control condition which provided upper limb exercises. Standing (Functional Reach), walking (MAS, item 5) and quality of life (SA-SIP30) were assessed at the end of treatment and again at 14 weeks..	Between week 0 and 6, and week 0 and 14 Functional Reach had improved significantly more in the experimental group. There were no differences in improvements on MAS or SA-SIP30 scores between the
Logan et al. 2005 UK 8 (RCT)	168 patients were randomized to a home-based occupational therapy intervention group or to a control condition. Patients in the intervention group reviewed mobility goals with an occupational therapist and received up to 7 treatment sessions over 3 months. Patients in the control group received leaflets describing local transport services for disabled persons. The response to the query *"do you get out of the house as much as you would like?"* was the main outcome. Secondary measures response to the query" *how many journeys outdoors have you taken in the last month?',* as well as scores on the Nottingham EADL and Nottingham Leisure Questionnaire.	The percentage of patients in the experimental group reported getting out of the house more at both 4 and 10 months, compared to patients in the control group (56 vs. 30% and 53 vs. 33%, respectively. The median number of outdoor journeys was higher at both 4 and 10 months for patients in the experimental group (37 vs. 14 and 42 vs. 14, respectively) The 4 month Nottingham EADL scores were higher for patients in the intervention group. There were no other significant differences between groups.

Home vs. Hospital-Based Outpatient Therapy

Author, Year Country	Methods	Outcomes
Gersten et al. 1968 USA 5 (RCT)	238 stroke patients were randomly assigned to receive rehabilitation at home or in a clinic setting.	128 completed the study. No differences in the functional, social or psychological status of patients in the 2 groups.
Young and Forster 1992 UK 6 (RCT)	124 stroke patients were randomized to attend a geriatric day hospital twice weekly for post-stroke care or to be treated at home by one of five experienced community physiotherapists.	A significantly greater proportion of home physiotherapy patients were assessed as independent by the Barthel Index, the Motor Club Assessment (MCA), and the Functional Ambulatory Category (FAC).
Gladman et al. 1993 UK 6 (RCT	327 stroke patients were randomized to receive domiciliary service for up to 6 months or hospital-based rehabilitation services.	Domiciliary group showed significantly greater performance on Extended ADL household and leisure sub-scores at 6 months.
Gladman and Lincoln 1994 UK 6 (RCT)	Follow up of 1993 study reporting outcomes between 6-months and one-year after discharge.	Relative risk of death or institutionalization in the domiciliary group was 1 .6 after one year.
Baskett et al. 1999 New Zealand7 (RCT)	1 00 patients were randomized to receive either weekly visits by an occupational therapist and/or physiotherapist who prescribed a program of exercises and activities or to receive outpatient/day hospital therapy._____	Change in Bl score was significantly better for the hospital therapy group compared to the home therapy group between entry and exit from the study. There were no other significant differences between the groups

Author, Year Country	Methods	Outcomes
Roderick et al. 2001 UK 7 (RCT)	140 stroke patients were randomized to receive rehabilitation through either home rehab or geriatric day hospital. Randomization was stratified by sex, age and disability level._____ .	No significant differences noted between the 2 groups on the Barthel Index, Rivermead Mobility Index, Frenchay Activities Index, at 6 months.
Lincoln et al. 2004 UK 7 (RCT)	428 stroke patients and their carers were randomized to rehabilitation from a community stroke team or to routine care, which could include day hospitals or outpatient departments. Most patients in the treatment group were referred upon discharged from inpatient rehabilitation	There were no significant differences between patients who received rehabilitation from community stroke team and those who received routine care in their independence in activities of daily living, mood, quality of life or knowledge of stroke. Patients in the community stroke team group were more satisfied with the emotional support they had received. There were no significant differences between the groups in satisfaction with practical help or overall satisfaction. Carers of patients in the community stroke team were under less strain than carers in the routine care group. Carers of patients in the community stroke team group reported greater levels of overall satisfaction.___

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Efficacy of Early Supported Discharge in Stroke Rehabilitation

Author, Year Country	Methods	Outcomes
Rodgefs et al. 1997 UK 6 (RCT)	92 of 402 stroke admissions were randomized to receive either early support discharge or conventional care. Eligibility criteria included patients who were not living in nursing home or were severely handicapped prior to stroke, Barthel Index 5-19 at 72 hrs post stroke and medically stable with no other conditions precluding rehabilitation.	Median length of stay (LOS) in hospital was significantly shorter for those receiving early supported discharge (13 vs. 22 days). There were no significant differences in functional outcome measures between the 2 groups.
Rudd et al. 1997 UK 7 (RCT)	331 stroke patients randomized to receive specialist community rehabilitation (CR) for up to 3 months after discharge or to receive conventional hospital and community care (CH). 660 patients from one of the two treating hospitals were screened. Of these, 300 were randomized. It is not clear how many patients were screened from the second treating hospital to recruit the 31 patients randomized.' Eligibility criteria included medically stable stroke patients who lived alone and were able to transfer independently or who lived with resident caregiver and were able to transfer with help.	LOS after randomization was significantly shorter for the CR patients than the CH patients (12 vs 18 days). There were no differences in functional outcomes. No cost savings were realized despite a reduction in hospital bed days.

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Author, Year Country	Methods	Outcomes
Duncan et al. 1998 USA 5 (pilot RCT)	20 minimally and moderately impaired stroke patients who had completed inpatient rehabilitation and who were 30 to 90 days after stroke onset were randomized to receive either home based exercise program, 3 x/ wk for 8 wks, or to receive usual post-stroke care. The number of patients screened was not reported	Effects of the intervention on upper extremity dexterity and functional healthy status were equivocal and no significant differences were noted between the two groups on any of the outcome measures
Holmqvist et al. 1998 Sweden 7 (RCT)	81 patients were randomized to receive either early supported discharge with continuity of rehabilitation at home for 3 to 4 months or to receive routine rehabilitation service in a hospital, day care and/or outpatient care. Eligibility criteria included patients who were continent, independent in feeding and normal mental functioning with impaired motor function and/or aphasia at one week. 86 of 220 stroke patients screened were eligible. 80% could walk 10 meters +/- cane on study	No significant differences were noted between the two groups on any of the outcome measures.
Ricauda et al. 1998 Italy 3 (RCT)	40 patients were randomized to be managed at home by a home hospitalization service (HHS) or to be managed on a general medical ward (GMW). Eligibility criteria included patients > 65 yrs., living within the catchment area and an informal evaluation of family support. The number of patients screened was not reported. .	HHS patients displayed significant improvement in their functional status and also demonstrated a significant improvement on the Short Portable Mental Status Questionnaire.

Author, Year Country	Methods	Outcomes
Ronning and Guldvog 1998 Sweden 6 (RCT)	251 stroke patients were randomized to in-patient rehab or usual care in the community. All patients with moderate or severe disability (admission Barthel <50) were included (n=114). 30% of patients randomized to the community did not receive any form of organized rehab.	The average length of inpatient rehab was 28 days. When moderate to severe strokes were studied, the hospital group reached a much greater level of functional independence (90 vs. 73 on Bl) with fewer dependent patients (Bl < 75) and decreased mortality (23% vs. 38%) at 7-month follow-up
Anderson et al. 2000 Australia 8 (RCT)	86 of 398 patients screened were randomized to receive either early supported discharge with home rehabilitation or conventional rehabilitation. Eligibility criteria included being medically stable, capable of participating in a rehabilitation program, having a home environment suitable for simple modifications and a community rehabilitation team available to provide care and access to a general practitioner	LOS in hospital was reduced significantly for patients in the early supported discharge group. (15 vs. 30 days). At 6-month follow-up self-reported general health status (SF-36) did not differ between the groups. Caregivers of patients in the home group had significantly lower general mental health component scores on the SF-36. There was a trend towards lower cost in the early supported discharge group.
Indredavik et **Author, Year Country PEDro Score** al. 2000 Norway 7 (RCT)	320 stroke patients were randomized to receive care on an enhanced stroke unit service (with early supported discharge and enhanced discharge planning) or an ordinary stroke service	A greater proportion of patients treated the extended stroke unit were independent (using Rankin scores #2 and Bl scores 395) and were discharged home (64 vs. 46%). Shorter LOS for patients treated on the extended stroke service (19 vs 31 days)
Kalra et al. 2000 UK 8 (RCT)	457 patients with moderate/severe stroke randomized to receive care on a stroke unit, care by a stroke team on a general ward or home care.	The odds of dying or being institutionalized at 1 yr were 3.2 times greater for stroke-team and 1.8 times greater for home care patients when compared to stroke unit patients. Barthel Index scores were better for stroke unit patients than for stroke team and home care. Modified Rankin scores were better for stroke unit patients than for stroke team, and home care patients.

Author, Year Country	Methods	Outcomes
Mayo et al. 2000 Canada 7 (RCT)	114 of 1542 admitted stroke patients were randomized after discharge to receive either home intervention or usual post stroke care. Eligibility criteria included patients with persistent motor deficits post stroke with caregivers willing and able to provide live-in care over a 4- week period. At 28 days those stroke patients who still needed >1 assist to walk, or those with cognitive impairment or with disabling coexisting conditions were excluded. Barthel scores were approximately 84 on average.	Duration of hospital stay reduced by 2.6 days (9.8 vs. 12.4) in the home treatment group. Barthel score did not change significantly between the two groups. Home therapy group did better on SF-36 physical health component and a community reintegration score vs. usual care
Von Koch et al. 2000 Sweden 6 (RCT)	6-month follow-up to Widen Holmqvist et al. 1998. 83 patients were randomized to receive early supported discharge and continued rehabilitation at home by specialized team (HRG) or to routine rehabilitation (RRG). Eligibility criteria included patients who had impaired motor capacity and/or dysphagia, were continent and independent in feeding. The number of patients screened was not reported.	Total Lindmark Motor Capacity Assessment score was significantly better in favour of the HRG and Inter-group difference in Barthel Mobility scores significantly better for the HRG.
Von Koch et al. 2001 Sweden 6 (RCT)	One-year follow-up study of von Koch et al (2000) assessing mortality, activities of daily living, social activities and motor capacity.	No significant differences in outcomes between the groups.

Author, Year Country	Methods	Outcomes
Bautz-Holter et al. 2002 Norway 8 (RCT)	82 acute stroke patients were randomized to early-supported discharge or conventional rehabilitation services groups. Nottingham EADL was assessed at 3 and 6 mos. Patients who were medically stable with a Barthel ADL score between 5 and 19 at 72 hrs post stroke were eligible to participate. 436 patients were admitted to the stroke unit, during the study period. Randomized patients represented 20% of those screened.	No significant differences in outcomes between the groups. The median LOS was reduced from 31 days to 22 days.
Suwanwela et al. 2002 Thailand 5 (RCT)	102 recent stroke patients with mild stroke (NIHSS < 20), were randomized to receive either hospitalization for 3 days or to conventional 10 day hospitalization followed by home rehabilitation provided by family members and Red Cross volunteers.	There were no differences in functional outcome between the groups, measured by NIH stroke scale scores, Bl scores and modified Rankin scores at 6 mos. There were also no differences in the rates of death or dependency between the groups.
Teng et al. 2003 Canada 7 (RCT)	Cost and caregiver burden analysis from Mayo et al. (2000).	The total costs after 3 mos. associated with the home care group were significantly less compared to the usual care group ($7,784 vs. $11,065 Canadian, p<0.0001). Lower caregiver burden scores were associated with home intervention group.
Donnelly et al. 2004 UK 7 (RCT)	13 stroke patients who had been previously residing at home with no pre-existing mental or physical disability were randomized to receive community-based rehabilitation (CBR) (n=59) or inpatient rehabilitation (n=54)	There were no differences on any of the outcomes measured at 12 months (Barthel index, Nottingham ADL, 10-m timed walk, EuroQol, SF-36) or carer strain. Overall patient satisfaction scores were significantly higher in the CBR program. There were no significant differences in costs between the two groups, measured in a subset of patients

Author, Year Country	Methods	Outcomes
Askim et al. 2004 Norway 7 (RCT)	62 acute stroke patients admitted to a stroke unit were randomized to an ordinary service (inpatients rehabilitation) or an extended service (ESUS) consisting of stroke unit treatment combined with a home-based program of follow-up care coordinated by a mobile stroke team offering early supported discharge. This intervention has been developed and described previously (Indredavik et al. 2000)	No significant differences in the proportion of patients who were independent (defined as a Modified Rankin scale of £ 2) 52 weeks following stroke (39% ESUS vs. 52% in the ordinary service). There were no significant differences in length of stay or Bl scores at 6, 26 or 52 weeks.
Thorsen et al. 2005 Sweden 7 (RCT)	5-year follow-up to Widen-Holmqvist et al. (1998). Outcome assessment was possible in 54/81 patients originally randomized (67%). There were 30 patients in the home rehabilitation group and 24 patients who remained in the conventional rehabilitation group	A greater proportion of patients in the intervention group had achieved independence, assessed using the Katz extended ADL instrument, but there were no differences using the Barthel Index. There were no differences between the groups in median Sickness Impact Profile scores, Frenchay Activities Index scores, 9-hole peg test or timed 10 metre walk.

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

APPENDIX E

Patients Information Sheet

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

Patients Information Sheet

Project Title: The Effect of a Home-based Rehabilitation Program on Physical Functional Status
in Post Stroke Patient.

Researcher: Pol. Lieutenant Jeuajan Wattakiecharoen, MSN, RN,
Doctoral Candidate, Chulalongkorn University

Place of conducting research: Medical ward and Outpatient Clinic.

This consent may contain words that you do not understand .Please ask the investigator or the study staff to explain any words or information that you do not clearly understand.

Background

Stroke is one of the major health problems in Thailand. Post stroke patients were left with varying degrees of chronic disability. Home-based rehabilitation is the process for helping post stroke patients to perform activities of daily living at the patient's home, and compensate for any residual disabilities. The goals of home-based rehabilitation program are to help post stroke patients living at home become as independent as possible, and to attain the best possible quality of life and better patients' outcomes[1]This program including activity daily living rehabilitation (transfers, mobility, and activities of daily living task, range of motion exercise) and Thai therapeutic massage training for care giver . This program will improve physical functional status. Nurses play important roles in encouraging post stroke patients to increase and maintain physical functional status.

Purpose of the study

The purpose of this study is to find out how well an intervention given to post stroke patients can change activity daily living and exercise behavior will be improve physical functional status.

What is involved in the study?

If you agree to participate in this study, you will be assigned into one of the two groups below :

- Be contacted by nurse researcher who will ask you and discuss exercise with massage and rehabilitation to improve your physical functional status after home-based rehabilitation program in addition to the usual care given by hospital nursing staff. You will be asked to fill out some questionnaires regard in exercise with massage and ADL rehabilitation and we will be measure your physical functional status, or
- You will receive the usual care given by the hospital nursing staff and be asked to fill out some questionnaires regarding exercise with massage and ADL rehabilitation and we will be measure your physical functional status.

Your participation will start on the fifth day after admission and before discharge to home and on the first , second and third month. at home. Each session lasts for 45 minutes.

You can stop participating at any time. Your decision to withdraw from the study will not affect in any way your medical care and / or benefits.

The Benefits and the risks from participating in this study

The intervention and discussion between the investigator and the participant regarding exercise with massage and ADL rehabilitation may help you to develop confidence and capability to engage in exercise and rehabilitation to improve physical functional status after post stroke.

There may be some risks such as pain which may occur for any person that has received rehabilitation, but these will be minimal if you follow the instructions given by the hospital nursing staff.

Confidentiality

A record of your participation in this study will be kept in the investigator's file and identified by a code number only. The code key connecting your name to specific information about you will be kept in the separate, secure location. Only the investigator and her professor will have access to the information collected and may not be given to anyone unaffiliated with the study in a form that could identify you without your written consent.

The results of this study may be published in a medical book or journal or used for teaching purposes. However, your name or other identifiers will not be used in any publication or teaching materials without your specific permission.

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

ข้อมูลสำหรับประชากรตัวอย่างหรือผู้มีส่วนร่วมในการวิจัย

(Patient/ Participant information sheet)

1. ชื่อโครงการวิจัย ผลของโปรแกรมการฟื้นฟูสภาพที่บ้านต่อสภาวะการทำงานของร่างกายผู้ป่วย หลอดเลือดสมอง
2 ชื่อผู้วิจัย ร้อยตำรวจโทหญิง เจือจันทน์ วัฒกีเจริญ นิสิตคณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
3. สถานที่ปฏิบัติงาน มหาวิทยาลัยคริสเตียน
   โทรศัพท์ที่ทำงาน 034-34229480 โทรศัพท์ที่บ้าน 02-5852739, 02-9118504
   โทรศัพท์เคลื่อนที่ 087-9874574 E-mail: jeuajanw@yahoo.com
4. ข้อมูลที่เกี่ยวข้องกับการให้คำยินยอมในการวิจัยประกอบด้วย คำอธิบายดังนี้

ความเป็นมาของโครงการ

โรคหลอดเลือดสมองเป็นโรคที่เกิดได้บ่อยและเป็นปัญหาสุขภาพที่สำคัญของประชากรในประเทศไทย ผู้ป่วยโรคนี้จะมีความพิการหลงเหลืออยู่ซึ่งส่งผลถึงการดำเนินชีวิตประจำวัน การฟื้นฟูสภาพผู้ป่วยเป็นวิธีการหนึ่งที่จะช่วยลดอาการแทรกซ้อนที่เกิดขึ้นจากความพิการอย่างได้ผล โปรแกรมการฟื้นฟูสภาพที่บ้านในผู้ป่วยโรคหลอดเลือดสมองประกอบด้วยการออกกำลังกายการนวดแผนไทยและการปฏิบัติกิจกรรมต่างๆที่มีความสำคัญในการฟื้นฟูสภาพในการทำหน้าที่ทางร่างกายของผู้ป่วย การปรับเปลี่ยนพฤติกรรมการออกกำลังกายและการปฏิบัติกิจกรรมต่างๆที่เป็นปัจจัยที่สำคัญในการฟื้นฟูสภาพอย่างมีประสิทธิภาพ ภายหลังการได้รับคำแนะนำตามแผนการรักษาของบุคลากรทางการแพทย์ การปฏิบัติจะขึ้นกับ แรงจูงใจและความสามารถของผู้ป่วย พยาบาลมีบทบาทที่สำคัญในการส่งเสริมการออกกำลังกายและการปฏิบัติกิจกรรมต่างๆเพื่อการฟื้นฟูสภาพทางกายของผู้ป่วยโรคหลอดเลือดสมองที่บ้าน ซึ่งประหยัดเนื่องจากไม่ต้องเสียค่าใช้จ่ายในการเดินทาง ตลอดทั้งญาติหรือผู้ดูแลสามารถพัฒนาความสามารถในการดูแลได้อีกส่วนหนึ่ง

วัตถุประสงค์ของการวิจัย เพื่อศึกษาว่าโปรแกรมการปฏิบัติกิกรรมการฟื้นฟูสภาพที่บ้านสามารถส่งเสริมภาวะการทำงานของร่างกายของผู้ป่วยโรคหลอดเลือดสมองได้หรือไม่

รายละเอียดที่จะปฏิบัติต่อประชากรตัวอย่าง

ถ้าท่านยินดีที่จะเข้าร่วมในการวิจัยครั้งนี้ท่านจะได้รับการดูแลแบบใดแบบหนึ่งในสองแบบดังนี้

- ได้รับการดูแลจากพยาบาลผู้วิจัยซึ่งจะสอน สาธิต สนทนาและให้คำปรึกษาเกี่ยวกับการออกกำลังกายการนวดแผนไทยและการปฏิบัติกิจกรรมต่างๆเพื่อฟื้นฟูสภาพการทำงานของร่างกายเพิ่มเติมจากการดูแลตามปกติจากพยายาล
  หรือเจ้าหน้าที่สาธารณสุขอื่นๆ นอกจากนี้ท่านจะได้รับการถามและสัมภาษณ์เกี่ยวกับการออกกำลังกายและการปฏิบัติกิจกรรมต่างๆรวมทั้งการติดตามประเมินผลการทำหน้าที่ทางกายภาพของร่างกาย หรือ
- ได้รับการดูแลปกติจากพยาบาลและจะได้รับการถามและสัมภาษณ์เกี่ยวกับการออกกำลังกายและการปฏิบัติกิจกรรมต่างๆรวมทั้งการติดตามประเมินผลการทำหน้าที่ทางกายภาพของร่างกาย

ท่านสามารถไม่เข้าร่วมโครงการได้ทุกเวลาทั้งนี้การไม่เข้าร่วมในโครงการจะไม่มีผลกระทบต่อการรักษาดูแลของท่านแต่อย่างใด

ประโยชน์และผลข้างเคียงที่จะเกิดแก่ผู้ร่วมโครงการ

การสอน การสาธิต การสนทนาการปรึกษา การสัมภาษณ์ ระหว่างท่านและพยาบาลผู้วิจัยเกี่ยวกับการออกกำลังกาย การนวดแผนไทยและการปฏิบัติกิจกรรมต่างๆในการฟื้นฟูสภาพจะช่วยให้ท่านพัฒนาความสามารถและความมั่นใจในการออกกำลังกายและการปฏิบัติกิจกรรมต่างๆเพื่อการฟื้นฟูสภาพการทำหน้าที่ของร่างกายอย่างมีประสิทธิภาพ

การออกกำลังกายและการปฏิบัติกิจกรรมต่างๆอาจทำให้เกิดอาการปวดซึ่งอาจเกิดขึ้นได้ ทั้งนี้อาการดังกล่าวจะเกิดได้น้อยมากถ้าท่านปฏิบัติตามคำแนะนำของพยาบาล

การเก็บข้อมูลเป็นความลับ

ข้อมูลที่ได้จาการศึกษาครั้งนี้จะเก็บเป็นความลับ ข้อมูลต่างๆจะใช้รหัสตัวเลขและเก็บไว้แยกจากชื่อและที่อยู่ของผู้เข้าร่วมวิจัยดังนั้นข้อมูลต่างๆจะปรากฏเพียงรหัสตัวเลขเท่านั้น ด้วยวิธีการนี้ข้อมูลต่างๆจะถูกเก็บเป็นความลับ พยาบาลผู้วิจัยและอาจาย์ที่ปรึกษาวิทานิพนธ์เท่านั้นที่จะสามารถเขาถึงข้อมูลนี้ได้

ผลการศึกษาอาจตีพิมพ์ในหนังสือและวารสารทางการแพทย์พยาบาลในลักษณะเพื่อการเรียนการสอนอย่างไรก็ตามชื่อของท่านจะไม่ถูกเสนอในการเผยแพร่ดังกล่าว

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

Informed Consent Form

Project Title: The Effect of a Home-based Rehabilitation Program on Physical Functional Status in Post Stroke Patient.

Researcher: Pol.Lieutenant Jeuajan Wattakiecharoen, MSN, RN, Doctoral Candidate, Chulalongkorn University.

I Mr./Mrs. /Ms._____ hereby certify that I have been told about this research and its purposes. I have been told how much time the discussion, interaction, and interview will take and the procedure will be used. I understand the possible risks and the possible benefits to me and to others from the project. I have been told about how information I give will be kept confidential. My information may be presented at an academic meeting.

I understand that I have right to ask questions at any time and I may contact Pol.Lieutenant Jeuajan Wattakiecharoen at Christian University ,Nakhon Pathom Province ,Thailand. , Tel 087-9874574

I also understand that I can stop taking part in this study at any time without penalty or loss of benefits or services to which I may be entitled.

I hereby freely consent to take part in this research project.

_____
Signature of Subject

_____
Signature of Researcher

_____
Signature of Witness

Date_____

I, undersigned, certify that I have explained to the participants, description of this study, the benefits and the risks of participating in this study.

_____
Investigator

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

ใบยินยอมของประชากรตัวอย่างหรือผู้มีส่วนร่วมในการวิจัย
(Informed Consent Form)

ชื่อโครงการ ผลของโปรแกรมการฟื้นฟูสภาพที่บ้านต่อภาวะการทำงานของร่างกายผู้ป่วยหลอดเลือดสมอง

เลขที่ ประชากรตัวอย่างหรือผู้มีส่วนร่วมในการวิจัย.....

ข้าพเจ้าชื่อ (นาย, นาง, นาวสาว).....
ได้รับทราบรายละเอียดของโครงการศึกษาวิจัยเรื่อง " ผลของโปรแกรมการฟื้นฟูสภาพที่บ้านต่อภาวะการทำงานของร่างกายผู้ป่วยหลอดเลือดสมอง " จากผู้วิจัยชื่อ ร้อยตำรวจโทหญิง เจือจันทน์ วัฒกีเจริญ

ข้าพเจ้าเข้าใจวัตถุประสงค์และแนวทางการวิจัยครั้งนี้โดยละเอียดและทราบจากผู้วิจัยว่าข้าพเจ้ามีสิทธิที่จะแจ้งขอออกจากการวิจัยก่อนที่การวิจัยจะสิ้นสุดลงได้โดยไม่ต้องให้เหตุผลหรือคำอธิบายใดๆและจะไม่มีผลใดๆต่อการบริการหรือการดูแลจากบุคลากรในทีมสุขภาพแต่ประการใด ผู้วิจัยรับรองว่าจะเก็บข้อมูลเป็นความลับและจะเปิดเผยเฉพาะข้อมูลสรุปผลการวิจัย

ถ้าข้าพเจ้าสงสัยสามารถติดต่อกับผู้วิจัยโดยตรงหรือที่หมายเลข 02-5852739 (บ้าน)
087-9874574 (มือถือ) หรือ อีเมล์ jeuananw@yahoo.com

ข้าพเจ้าได้รับทราบและได้ซักถามผู้วิจัยจนหมดข้อสงสัยโดยตลอดแล้วและยินดีเข้าร่วมในการศึกษาวิจัยครั้งนี้ ภายใต้เงื่อนไขที่ระบุไว้ข้างต้นจึงได้ลงลายมือชื่อไว้เป็นหลักฐาน

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(.....)
สถานที่/วันที่ ผู้มีส่วนร่วมในการวิจัย

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(.....)
สถานที่/วันที่ ผู้ดูแล

..... ……..
(ร้อยตำรวจโท หญิง เจือจันทน์ วัฒกีเจริญ)
สถานที่/วันที่ ผู้วิจัยหลัก

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

BIOGRAPHY

I am Police Lieutenant Jeuajan Wattakiecharoen. I was born on August 13, 1954 in Bangkok, the capital city of Thailand. In 1976, I got the certificate of nursing and midwifery program from the Police Nursing School and then worked as a nurse in the intensive care unit in Police General Hospital in Bangkok during 1976-1986. Simultaneously, I studied psychology specifically in counseling and guidance from Ramkhamhaeng University. I got the bachelor of psychology in 1982 and then got bachelor of education (medical-surgical nursing) from Chulalongkorn University in 1983.

I moved to work at Maharajah Nakhonsithamrat Hospital as a nurse in intensive care unit during 1986-1987. In 1987-1996, I had worked as a nurse instructor at College of Nursing, Nakhonsithamrat. In 1989, I started to study master degree of nursing science at the faculty of nursing, Mahidol University and graduated in 1991. During 1997 to 2002, I had worked as a lecturer at Walailak University, Nakhonsithamrat.

In 2007, I graduated the dotoral program of nursing science from the faculty of nursing by receiving the research grant from faculty of graduate studies, Chulalongkorn University. After graduation, I go back to work as a lecturer at Christian University, Nakhon Pathom.

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย