EFFECTS OF A HOME-BASED MANAGEMENT INTERVENTION PROGRAM FOR FAMILY CAREGIVERS OF ELDERLY PATIENTS UNDERGOING HIP ARTHROPLASTY ON ELDERS' POSTOPERATIVE RECOVERY, AND SATISFACTION

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Athithan Sumarnjaroen

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ABSTRACT

The objective of this quasi-experimental research was to investigate the effects of a Home-Based Management Intervention Program (HMIP) for the family caregivers of elderly patients undergoing hip arthroplasty on the elders' postoperative recovery and satisfaction. The conceptual framework of the study was derived from the Roy's Adaptation Model. The purposive sample consisted of 54 dyads of post hip arthroplasty patients and their family caregivers. The patients were admitted in general orthopedic wards at two tertiary care hospitals in Bangkok, from February 2002 to January 2003. The subjects were equally assigned to the control group and the experimental group. The control group received only conventional nursing care, whereas the experimental group received conventional nursing care coupled with the HMIP. Data were obtained by assessment and semi-structured interview based on the following questionnaires: the Demographic Data, the Barthel Index, the Pain Visual Analog Scale, the Postoperative Complication Form, and the Patients' Satisfaction. The data were analyzed using descriptive statistics, Chi-square test, Analysis of Covariance, and independent t-test. Findings revealed that at the second and the sixth weeks after operation, the mean score of activities of daily living of the patients in the experimental group was statistically significantly higher than that of the control group, and the mean score of surgical hip pain was statistically significantly lower than that of the control group. At the second and the sixth week after operation, the number of postoperative complications of the patients in the experimental group was statistically significantly lower than that of the control group. The mean score of patient's satisfaction in the experimental group was statistically significantly higher than that of the control group. The finding of this study could be used as a guideline in helping caregivers provide quality of care to the dependent elders after hip arthroplasty.

KEY WORDS: FAMILY CAREGIVER / ELDERLY / HIP ARTHROPLASTY/ POSTOPERATIVE RECOVERY / SATISFACTION

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ผลของการสอนญาติด้วยโปรแกรมการดูแลผู้ป่วยสูงอายุกระดูกสะโพกหักหลังผ่าตัดเปลี่ยนข้อสะโพก ต่อการฟื้นสภาพหลังผ่าตัดและความพึงพอใจของผู้ป่วยต่อการพยาบาลที่ได้รับ
(EFFECTS OF A HOME-BASED MANAGENENT INTERVENTION PROGRAM FOR FAMILY CAREGIVERS OF ELDERLY PATIENTS UNDERGOING HIP ARTHROPLASTY ON ELDER'S POSTOPERATIVE RECOVERY AND SATISFACTION)

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บทคัดย่อ

การวิจัยกึ่งทดลองครั้งนี้ มีวัตถุประสงค์เพื่อศึกษาผลของการสอนญาติด้วยโปรแกรมการดูแลผู้ป่วยสูงอายุกระดูกสะโพกหักหลังผ่าตัดเปลี่ยนข้อสะโพก ต่อการฟื้นสภาพหลังผ่าตัดและความพึงพอใจของผู้ป่วยต่อการพยาบาลที่ได้รับ โดยใช้ทฤษฎีการปรับตัวของรอยเป็นแนวทางในการศึกษา กลุ่มตัวอย่างเป็นผู้ป่วยสูงอายุกระดูกสะโพกหัก ที่ได้รับการผ่าตัดเปลี่ยนข้อสะโพก ที่เข้ารับการรักษาในหอผู้ป่วยออร์โธปิดิกส์สามัญ โรงพยาบาลตติยภูมิ 2 แห่งในกรุงเทพมหานคร ตั้งแต่เดือนกุมภาพันธ์ 2545 ถึงเดือนมกราคม 2546 และญาติผู้ดูแลจำนวน 54 คู่ เลือกกลุ่มตัวอย่างแบบเฉพาะเจาะจงตามคุณสมบัติที่กำหนดไว้ แบ่งเป็นกลุ่มควบคุมและกลุ่มทดลอง กลุ่มละ 27 คู่ โดยกลุ่มควบคุมได้รับการพยาบาลตามปกติ ส่วนกลุ่มทดลองได้รับการพยาบาลตามปกติร่วมกับได้รับการสอนตามโปรแกรมที่ผู้วิจัยสร้างขึ้น เก็บรวบรวมข้อมูลจากการประเมินและสัมภาษณ์ตามแบบสอบถาม ได้แก่ แบบสอบถามข้อมูลส่วนบุคคล แบบวัดความปวดด้วยการเปรียบเทียบจากเส้นตรง แบบวัดความสามารถในการปฏิบัติกิจวัตรประจำวันของบาร์เทล แบบวัดการเกิดภาวะแทรกซ้อนหลังผ่าตัด และแบบวัดความพึงพอใจมันโร วิเคราะห์ข้อมูลโดยใช้สถิติเชิงบรรยาย การทดสอบไคสแควร์ การวิเคราะห์ความแปรปรวนร่วม และการทดสอบด้วยสถิติที ผลการศึกษาพบว่า ในสัปดาห์ที่ 2 และสัปดาห์ที่ 6 หลังผ่าตัด ผู้ป่วยในกลุ่มทดลองมีคะแนนเฉลี่ยความสามารถในการปฏิบัติกิจวัตรประจำวันสูงกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ มีคะแนนเฉลี่ยความปวดสะโพกที่ผ่าตัดต่ำกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ มีการเกิดภาวะแทรกซ้อนหลังผ่าตัดน้อยกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ และในสัปดาห์ที่ 6 หลังผ่าตัดผู้ป่วยในกลุ่มทดลองมีคะแนนเฉลี่ยความพึงพอใจต่อการพยาบาลที่ได้รับสูงกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ ผลการศึกษาสามารถนำไปใช้เป็นแนวทางในการส่งเสริมคุณภาพการดูแลญาติผู้ดูแลผู้ป่วยสูงอายุกระดูกสะโพกหักที่ได้รับการผ่าตัดเปลี่ยนข้อสะโพก

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CHAPTER I
INTRODUCTION

Background and Rationale

At present, the number of elderly population of Thailand is increasing rapidly. In 1960, the population aged 60 and older comprised only 4.6 % of the total population, and the number increased to 7.36 % of the total population in 2000, and will represent 15.28 % by 2020 (Jitapunkul & Bunnag, 1997: 7). Thus, it is clear that the aged population is a large group of users of health services. One important health problem of the elderly is hip fracture. A result of the incidence of hip fractures is increasing exponentially with age, doubling every five to six years after the age of 50, with 85% of hip fractures occurring in the patients older than 65 years (Ackermann, 1998: 366; American Academy of Orthopaedic Surgeons, 2001). In Thailand, a multicenter study on incidence of hip fractures has demonstrated the incidence of 7.05 per 100,000 population among Thai people aged 45 and over (Suriyawongpisal, P., et al., 1994: 488 – 495).

Hip fractures are a major cause of morbidity and mortality in the elderly, and usually follows a fall (American Academy of Orthopaedic Surgeons, 2001; Hoenig, et al., 1997: 513; Khanongnuch, S., 1997: 31; Sumana Saenmanoch, B.E.2541: 52; Zuckerman, 1996: 1519). Almost all hip fracture patients require hospitalization and surgical repair. The goals of surgical treatment include regaining prior level of functional mobility, returning to previous living situation, and preventing complications associated with immobility such as deep vein thrombosis, pulmonary embolism, pneumonia, and pressure ulcer (Lichtblau, 2000: 50; Yarnold, 1999: 38). Hip arthroplasty has been generally preferred surgical treatment in the elderly patients with hip fractures, especially in the elderly patients with displaced femoral neck fractures and unstable intertrochanteric fractures because of the incidence of nonunion, failures of osteosynthesis, and avascular necrosis in these patients (Chan & Gill, 2000: 207; Lee, et al., 1998: 74; Young, et al., 1996; Young, et al., 1997: 288).

In the elderly patients with post hip arthroplasty, despite the successful operation in terms of healing of the fracture due to advances in operative techniques and implant technology, the patients may be unable to regain the preinjury level of function and independence (Koval & Zuckerman, 1994: 751). Likewise, its postoperative complications may dramatically diminish the quality of life for many elderly patients (Yarnold, 1999: 36). It has been estimated that between 31 and 59% of elderly individuals who survive a hip fracture neither recover their pre-fracture ambulatory status nor achieve their previous level of independence within the year following their fracture (Koval, et al., 1995: 152; Lee, et al., 1998: 72; Van Balen, et al., 2001: 235). These functional limitations may compound their existing medical condition and psychosocial problems. Many of these elderly do not only suffer from surgical pain, but also have more limitation of activities of daily living (ADLs) during the convalescence period (Kenzora, et al., 1998: 55; Rosswurm & Lanham, 1998: 18). Furthermore, they may develop complications leading to prolonged hospitalization and recovery (Barangan, 1990: 19). The longer time is needed for rehabilitation of elderly patients because of the degenerative change in physical and mental health of aging. Consequently, elderly patients who undergo hip arthroplasty require extensive rehabilitation in the convalescence period (Bernardini, et al., 1995: 897; Williams, et al., 1994b: 55).

Moreover, health care costs in Thailand have risen dramatically during the past decade. This has resulted in the implementation of cost containment measures and increased reliance on family and friends to provide informal care to substitute for formal health care services. In the past, elder patients remained in the hospital for most of their recovery period but today they are discharged earlier. Therefore, family members play a vital role in maintaining the health and independence of patients. Given the current limitations of resources and support services in the community, Thai family caregivers have to manage the overall care of patients and perform health care tasks that are sometimes very complicated. This often comes at great personal expenses and frequently with little or no training or resources from health care professionals.

Caring for an elder with post-hip arthroplasty at home requires considerable physical and psychological efforts. The results of prior studies (Monkong, S., 1999;

Williams, et al., 1996) showed that family caregivers experience a sense of confinement, stress and/or burden, difficulties in ADLs assistance and in performing Instrumental Activities of Daily Living (IADLs) tasks. They also have problems in managing patients' behavior, moods, and demands of attention, and they may have conflicts with their other roles. In particular, a transition from hospital to home (the first two weeks to two months following discharge) is a period of intent stress and burden for family caregivers (Bull, 1990, 1992; Bull, et al., 1995). The caregivers often reported that they have difficulties in multiple needs (Naylor, 1990). Therefore, caregivers need assistance from nurses to help them during this period. Studies (Chanita Maneewan, et al., B.E.2535; Hileman, et al., 1992; Longman, et al., 1992; Surerat Chuangsawasak, B.E.2541) have reported that in the transition period, needs of family caregiver include help in personal care, household management, activity management, interpersonal interaction, financial and material, and psychological and spiritual support. Furthermore, they also need to be informed about normal aging process, how to care for the patient at home, and stress management (Krach & Brooks, 1995).

Family caregivers who take major responsibility in caring for dependent persons or chronically ill patients inevitably feel an impact on their lives, especially if circumstances require long term care. In the past two decades, numerous studies in the United States have been conducted on family caregiving with a majority focusing on caregivers of the elderly, especially dementia patients. Numerous research indicates that being a family caregiver can be very stressful (Haley, et al., 1987; Hawkins, 1996; Long, 1991; Periard & Ames, 1993; Quayhagen & Quayhagen, 1988; Starrels, et al., 1997). The demands of care require the caregivers' physical energy, knowledge, skill, and motivation (Haley et al., 1987; Long, 1991; Quayhagen & Quayhagen, 1988). However, research on the experience of family caregiving for elderly with fractured hip during the early part of their posthospital convalescent period was scarce (Congdon,1994; Silliman & Sternberg, 1988; Williams, et al., 1996).

Family caregiving has become an area of interest for studies by nurses in Thailand because of the increasing demands of care for chronically ill patients in the community. From the literature review (Sirapo-ngam, Y., 2002), 80 studies have been conducted by nurses over the past decade: 63 descriptive and 17 quasi-experimental

designs. The majority of these studies dealt with the primary caregivers of dependent elders, chronically ill adults with either physical or mental health problems, or children with a chronic disease. The overall results have revealed that caregivers experience stress in providing care to their relatives. Some of these studies found that caregiver burden has a negative correlation with the caregiver's health and well-being (Phiangjai Tirapaiwong, B.E.2540; Saipin Gasemgitvatana, B.E.2536; Saipin Gasemgitvatana, et al., B.E.2539; Wipawan Chaoum, B.E.2536), while social support is negatively correlated with stress (Chanpen Saewun, B.E.2537; Fuanglada Kenchaiwong, B.E.2539; Saipin Gasemgitvatana, B.E.2536; Saipin Gasemgitvatana, et al., B.E.2539).

There are some intervention programs developed to train and help caregivers in Thailand. Chavalee Yamvong (B.E.2538) and Sumana Saenmanoch (B.E.2541) reported that promoting caregiver participation in care during hospitalization can improve patient functioning, decrease caregiver anxiety, and increase both patient and caregiver satisfaction. Somnuk Sakulhongsophon (B.E.2540) reported that providing a nursing intervention based on Roy's adaptation model could help reduce caregivers' stress. Pornchai Jullamate (B.E.2540) also reported that giving informational and emotional support helps reduce the burden of stroke patients' caregivers. However, most of intervention studies for caregivers were conducted in a hospital setting and did not emphasize patients' outcome. Therefore, this quasi-experimental study was designed to determine the effect of a Home-Based Management Intervention Program (HMIP) for family caregivers of elderly patients undergoing hip arthroplasty. The expected outcomes of the intervention include patients' recovery and satisfaction with nursing care that they received.

Conceptual Framework

The conceptual framework for this study was based on the Roy Adaptation Model. According to the Roy Adaptation Model (Roy & Andrews, 1991: 17-18, 1999: 29-56), a person is a bio-psycho-social holistic being who constantly interacts with a dynamic environment and must change continually to adapt to environment stimuli. The human adaptive system receives input from the external environment and from the internal person that is categorized into three classes: focal stimuli, contextual stimuli,

and residual stimuli. The focal stimuli are those most immediately confronting the person, the contextual stimuli are the contributing factors in the situation that contributes to the effect of the focal stimuli, and the residual stimuli are the unknown factors that may influence the situation. When the factors making up residual stimuli become known, they are usually considered contextual stimuli.

Roy conceptualizes the person as an adaptive system with cognator and regular coping process, and categorizes behavior resulting from coping process to environmental stimuli into four modes: physiological, self-concept, role function, and interdependent modes. The four modes are interrelated, such that responses for any one mode may have an effect on or act as a stimulus in one or all of the other modes. The person's behavioral responses can be either adaptive or ineffective. Adaptive responses of the person are those that contribute to the persons' goals for survival, growth, reproduction, and mastery; ineffective responses are those that do not have contribution. These responses act as feedback or further input to the system, allowing a person to decide whether to increase or decrease efforts to cope with the stimuli.

In this study, the caregivers interacted with the demands of caregiving or dependent level of the elderly post-hip arthroplasty patients, which were focal stimuli. Nurses can help caregivers to promote their adaptive response by increasing caregiver's ability to adapt with the demands in the caregiving situation. And as mentioned earlier, when caring for patients at home, caregivers need help from nurses including knowledge and emotional support as well as household management. The Home-Based Management Intervention Program (HMIP) for caregivers of elderly post-hip arthroplasty patients was developed for this study. Nursing activities of the HMIP composed of individual teaching and training, home visit, and ad hoc telephone counseling. Contents for teaching included: the nature of elderly, the hip fracture and hip arthroplasty, the postoperative and home care for the patients, an caregiver management of their time, responsibility, stress and work life. The primary aim was to help the caregivers adapt themselves with the caregiving situation. If the caregivers had good adaptation, the outcomes that could be measured as indicators were the patients' postoperative recovery and satisfaction (Figure1).

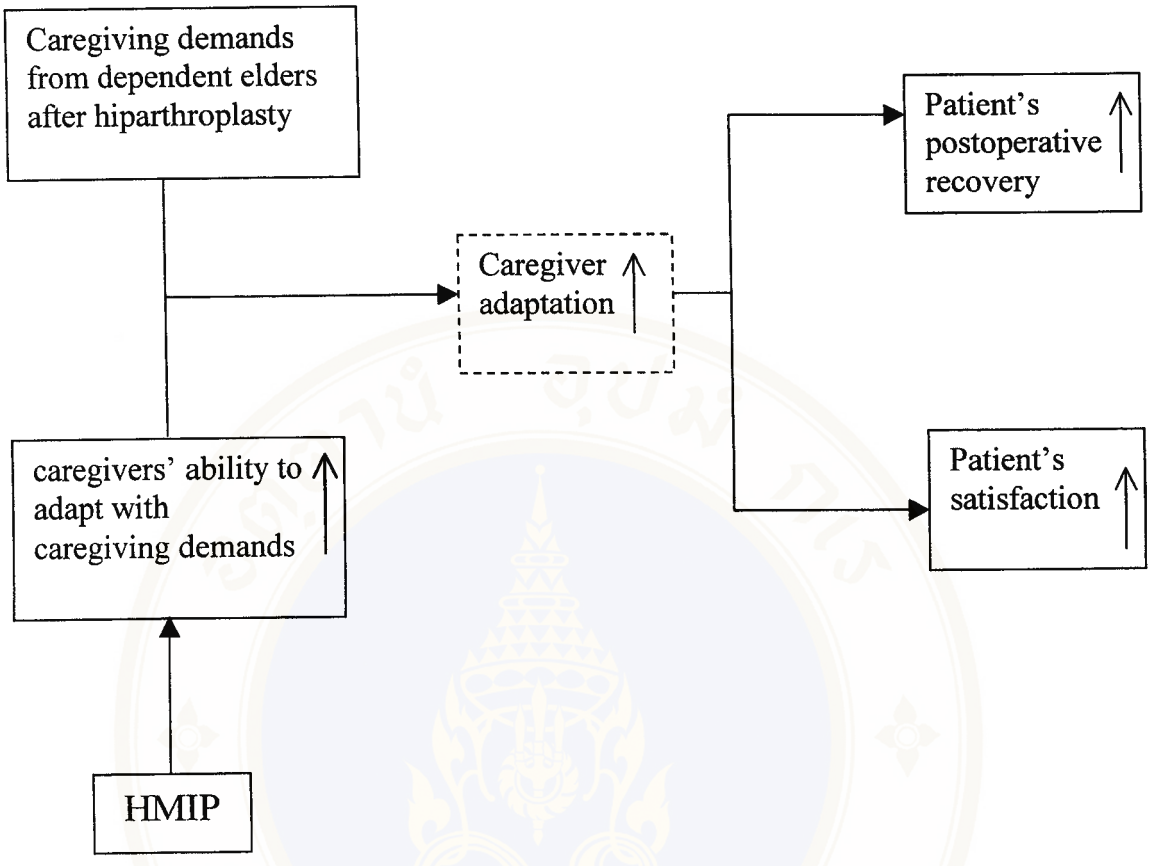

Figure 1: Conceptual framework of this study

Research Question

Can the Home-Based Management Intervention Program for the family caregivers of elderly patients undergoing hip arthroplasty improved patients' postoperative recovery and satisfaction?

Research Objectives

1. To compare the mean scores of the ADLs of the patients in the control and the experimental groups at the second and the sixth week after operation.
2. To compare the mean scores of the surgical hip pain of the patients in the control and the experimental groups at the second and the sixth week after operation.
3. To compare the number of the postoperative complications of the patients in the control and the experimental groups at the second and the sixth week after operation.

4. To compare the mean scores of the patients' satisfaction in the control and the experimental groups at the sixth week.

Research Hypotheses

The hypotheses of the study are as follows:

1. At the second and the sixth weeks after the operation, the mean scores of the ADLs of the patients in the experimental group is higher than that of the control group.

2. At the second and the sixth weeks after the operation, the mean scores of surgical hip pain of the patients in the experimental group is lower than that of the control group.

3. At the second and the sixth weeks after the operation, the number of the postoperative complications of the patients in the experimental group is lower than that of the control group.

4. At the sixth weeks after the operation, the mean score of patient's satisfaction in the experimental group is higher than that of the control group.

Scope of the Study

The purpose of this quasi-experimental research was to determine the effects of a Home-Based Management Intervention Program (for the family caregivers of elderly post-hip arthroplasty patients) on patients' recovery and satisfaction. The sample of 54 patients undergoing hip arthroplasty and their primary caregivers were obtained at the orthopedic ward of two tertiary care hospitals in Bangkok, Thailand, from February, 2002 to January, 2003.

Expected Outcomes and Benefits

1. The results of this study could be used as data for development of practice guideline, especially in the care for the elderly patients with hip arthroplasty.

2. The findings could be used as a guideline for orthopedic nurse specialists to appropriately promote and develop their roles to provide continuing postdischarge care to the elderly patients.

3. The findings could also be a guideline for nurses and health care teams enabling them to realize the significance of promoting and developing the family caregivers' caring skills and adaptation in caregiving for the elderly patients at home by teaching and training the caregivers to improve their caring abilities and provide effective care to the patients.

Definition of Terms

The definitions of the terms used in this study were as follows:

Home-Based Management Intervention Program (HMIP) referred to nursing intervention developed by the researcher based on the literature review about impact of caregiving, caregivers' responses, and needs of caregivers in caring for the dependent elders. Contents of HMIP consisted of four topics as follows: the nature of the elderly, the hip fracture and hip arthroplasty, the postoperative and home care for the patients, and caregiver management of their time, responsibility, stress, and work life.

Conventional nursing care referred to nursing care provided to patients and their family caregivers by hospitals' personnel during hospitalization and six weeks after the patients' operation.

Postoperative recovery referred to patients' recovery from hip arthroplasty during six weeks postoperatively. This included:

Activities of daily living (ADLs) referred to the basic activities in daily life including feeding, grooming, transferring, toileting, moving, dressing, climbing stairs, bathing, and having bowel and bladder control. It can be measured by Barthel ADL Index (Mahoney & Barthel, 1965), which was translated into Thai by Chavalee Yamvong (B.E.2538). The Index was used to assess the patients' functional status.

Surgical hip pain referred to the patients' self-report of pain at the operated hip during movement or activities. It was assessed by the Pain Visual Analog Scale (McCaffery & Pasero, 1999: 62).

Postoperative complications referred to signs and symptoms of complications experienced by the patient throughout the six-week post-hip arthroplasty period. These complications included surgical site infection, urinary tract

infection, pneumonia, pressure ulcer, muscle atrophy, joint stiffness, and prosthetic joint dislocation. These were assessed based on the patients' conditions, review of the patients' records, and laboratory evidence.

Patient satisfaction referred to the feeling of the patient toward nursing care that they received, measured by using Munro's patient satisfaction questionnaire that was developed by Lamonica, et al. (1986) and revised by Munro, et al. (1994). Chavalee Yamvong (B.E.2538) translated this questionnaire into Thai.

CHAPTER II
LITERATURE REVIEW

This quasi-experimental research aimed to determine the effects of a Home-Based Management Intervention Program for the family caregivers of elderly post-hip arthroplasty on patients' postoperative recovery and satisfaction. The literature review is presented in sequence as follows: hip fracture in the elderly and surgical treatment, family caregiver of the elderly post-hip arthroplasty, and satisfaction with nursing care.

Hip Fracture in the Elderly and Surgical Treatment

Hip fracture in the elderly

Hip fracture, a significant cause of morbidity and mortality in the elderly, is expected to increase exponentially in frequency over the next 50 years as a result of increased life expectancy and population growth (Boonyaratavej, N. et al., 2001: 244; Salkeld, et al., 2000: 341). Approximately 90 to 95% of hip fractures occur in people aged 50 years and older (Cifu, 2001: 1; Suriyawongpaisal, P., et al., 1994: 492; Zuckerman, 1996: 1519). The current overall mortality rate at four to six months, and six months and one year ranges from 13 to 44% and 12 to 36%, respectively. The highest risk of mortality after hip fractures occurs in the first four to six months, higher than in persons of similar age and gender who have not suffered a fracture, although some of this excess mortality may be attributable to underlying diseases rather than to the fracture itself (Cifu, 2001: 2; Marottoli, et al., 1994: 1807; Robinson, 1999: 1341).

Incidence rates of hip fracture per 100,000 population in different countries give figures ranging from 5.6 in South Africa, 42.8 in UK, 69.6 in Sweden (Downton, 1993: 30). In the United States, the incidence of hip fractures is approximately 80 per 100,000 and is doubling every five to six years over those of aged 50 (AAOS, 2001; Cifu, 2001: 1). In Thailand, a multicenter study on incidence of hip fractures has demonstrated the incidence of 7.05 per 100,000 population among Thai people aged

45 and over. However, there are some limitations with the Thai data because the reporting systems do not include data of private hospitals and traditional healers, and misclassification of cases due to recall bias in reporting about mechanism of injury may also exist (Suriyawongpisal, P., et al., 1994: 488 – 495).

Risk factors for hip fractures

There are several studies that investigated risk factors associated with hip fractures. Based on the longitudinal study of aging between 1984 and 1991, Young and colleagues (2001) found that the risk factors significantly associated with time to first hip fracture are increasing age, female, Caucasian race, a history of falls, insufficient exercise, infrequent church attendance (a likely proxy for outside the home activities), hospitalization in the year before the study, and low body mass index. Moreover, Lau and colleagues (2001) studied risks factors for hip fracture in Asian men and women. The results revealed that the lifestyle factors that are statistically significantly associated with hip fracture are low dietary calcium intake, lack of physical activity, no vigorous sports activity at 25-49 years, cigarette smoking, alcoholism, history of falls twice or more in the last twelve months, a history of fractures after 50 years of age, history of stroke, height more than 1.56 meters in women and 1.69 meters in men, and low body mass index. The use of sedative and drugs for thyroid disorders is also associated with an increased risk of hip fracture in women. In addition, a case-control study was conducted to identify hip fracture risk in Thai elderly women (Boonyaratavej, N., et al., 2001). The results showed that the factors significantly associated with an increased risk include parents of Chinese race; activity before fracture; alcohol consumption; underlying diseases such as hypertension, diabetes, cerebovascular disease and thyroid disease; a history of taking diuretics, sedative, antihistamines and traditional drugs; a history of fracture and past falls; number of pregnancies; livebirths and breastfeeding of children.

Most of hip fractures result from falls (American Academy of Orthopaedic Surgeons, 2001; Khanongnuch, S., 1997: 31; Salkeld, et al., 2000: 342; Sumana Saenmanoch, B.E.2541: 52). Risk factors for falls are usually classified as intrinsic (physiologic, or within the body) and extrinsic (external, or outside the body, or iatrogenic, resulting from medical care or treatment). The details are described below (Corrigan, et al., In Abraham, et al., Eds., 1999: 80 – 81; Kippenbrock & Sija,

1993: 205 – 206; Miller, In Stanley & Beare, Eds., 1995: 285 – 288; Tideiksaar, 1996: 45):

1. Intrinsic factors. The following physiologic factors increase the risk of falls.

1.1 Age and sex. The incidence of fall increases markedly at age 75, with people aged 80 to 89 at the highest risk and women are at a higher risk than men.

1.2 Normal aging changes are slowed reaction time, gait and balance change, decreased muscular strength and endurance, and sensory deficits, especially hearing loss and diminished visual acuity.

1.3 Medical risk factors are neurologic, cerebrovascular, cardiovascular, musculoskeletal condition, and medications, e.g. poor vision due to cataracts, postural hypotension, syncope, nocturia, and incontinence.

2. Extrinsic factors. The following external factors increase the risk of falls:

2.1 Environmental traps. The most common causes of falls are objects in the immediate environment: electrical cords, throw rugs, loose carpeting, toys, pets, stools or other low furniture can all be hazards. Wet floors, bathtubs, or showers and objects left on the floor can lead to a slip. Dim light or poor lighting, overly bright lighting, uneven or highly patterned flours and steep stairs can all pose a danger to elderly people. Furthermore, long, loose clothing can catch on furniture, doorknobs, or objects that have fallen onto the floor. No foot wears or inappropriate foot wares that fit loosely or that have slippery or sticky soles also increase risks of falls.

2.2 Assistive devices. Many falls are associated with the improper use of assistive devices such as canes and walkers. Many elderly people buy such devices without learning how to use them and fail to maintain them properly.

In a population-based case-control study of Cumming and klineberg (1994), a strong relationship between reported number of falls in the past year and risk of hip fracture was found. Adjusted Odds Ratio for hip fracture comparing those who reported four or more falls in the past year with those who reported no falls in women

and men were 4.38 (95% CI = 1.93 - 9.93) and 20.45 (95% CI = 3.34 - 125.10), respectively.

In Thailand, Lausawatchaikul, P. (1999) studied fall-related factors in community-dwelling elders. The result showed that the majority of falls took place in and around the patient's home, and the bathroom was the most common location of the incident. The main causes of falls were extrinsic factors, of which slipping was the most frequently reported. The case-control study of Thiamwong, L. (2001) found that six risk factors were significantly associated with falls in stepwise logistic regression analysis: female sex, visual impairment, balance impairment, medication use, history of falls, and Thai style house.

Types of hip fracture

Hip fractures are generally a fracture of the proximal femur that occurs predominantly as low-energy trauma (a simple fall) in the elderly. Such injuries are divided into three categories, according to the anatomical area in which they occur (Lichtblau, 2000: 51). Femoral neck fractures are located in the area distal to the femoral head but proximal to greater and lesser trochanters and are considered intracapsular fractures, because they are located within the capsule of the hip joint. Orthopedists often classify femoral neck fractures using the Garden classification, and divide them into two categories: nondisplaced (Type I and Type II) and displaced (Type III and IV) (Koval, In Spivak, et al., Eds., 1999: 538-539). Intertrochanteric fractures, which occur in the well-vascularized metaphyseal region between the greater and lesser trochanter, are extracapsular fractures that do not interfere with the blood supply to the proximal femur. These fractures are classified as either stable or unstable, depending on absence or presence of posteromedial comminution (Koval, In Spivak, et al., Eds., 1999: 540-541). Subtrochanteric fractures are those that occur just below the lesser trochanter. These fractures are more commonly grouped as stable or unstable (Cifu, et al., 2001: 2). Femoral neck fractures and intertrochanteric account for over 90% of all hip fractures in the elderly, occurring in approximately equal proportions, and subtrochanteric fractures account for the remaining 5 to 10% (Marek, In Phipp, et al., Eds., 1999: 1938; Zuckerman, et al., 1992: 218; Zuckerman, 1996: 1519).

Surgical treatment of hip fracture

The primary goal of hip fracture management includes regaining prior fracture level of functional mobility and returning to the previous living situation. In most patients with fracture, this is, best accomplished by surgical treatment, followed by early mobilization (Jimenez, In Baratz, et al., Eds., 1999: 489-491; Koval, In Dee, et al., Eds., 1997: 466; Marek, In Phipp, et al., Eds., 1999: 1938). The type of surgery, with the use of either internal fixation or prosthetic replacement, is based on the location of the hip fracture, bone quality, displacement, and type (simple or comminuted). The patient's physiological condition and age, level of function before surgery, life expectancy, and ability to participate in a postoperative rehabilitation program are also taken into consideration (Zuckerman, 1996:1520).

The prosthetic replacement has been generally preferred treatment in the elderly patients with hip fractures because of the incidence of nonunion, failures of osteosynthesis, and avascular necrosis, especially the elderly patients with displaced femoral neck fractures and unstable intertrochanteric fractures (Chan & Gill, 2000: 207; Lee, et al., 1998: 74; Young, et al., 1996). For example, a meta-anlysis of 106 published reports of the treatment of displaced fractures of the femoral neck found that after primary internal fixation of a displaced fracture of the femoral neck, a nonunion had developed in 33% of the patients and avascular necrosis in 16%. Conversion to an arthroplasty was the most common reoperation after internal fixation and accounted for about two-thirds of these procedures (Lu-Yao, et al., 1994: 18-19). Similarly, the study of cost-effectiveness analysis of several treatment options for displaced femoral neck fractures in elderly patients suggested that prosthetic replacement was the most cost-effective treatment when complication rate, mortality, reoperation rate, and function were evaluated during a 2-year postoperative period (Iorio, et al., 2001: 229).

Type of hip prosthetic replacement surgery

Prosthetic replacement of hip fracture is done through 1) hemiarthroplasty, the replacement of the femoral head, and 2) total hip arthroplasty, which replaces both the acetabular cup and the femoral head.

1. Hemiarthroplasty is performed using either unipolar (Thompson or Austin-Moore) or bipolar (Hastings or Bateman) prostheses. Unipolar hemiarthroplasty is simpler and less expensive than bipolar hemiarthroplasty.

However, the rigid design (a metal head rotating within the acetabulum) of unipolar prostheses results in acetabular erosion (groin pain) and thigh pain. Therefore, bipolar prostheses are designed to allow an extra plane of motion within the acetabulum, which reduces the chances of erosion (Cifu, et al., 2001: 5; Lyons, 1997:55s).

The best indication for hemiarthroplasty is to treat femoral neck fractures in geriatric patients whose acetabular are normal. The other indications include fracture dislocation of the femoral neck, cominuted fractures that cannot be reduced, pathological fractures, fracture poorly reduced at surgery, fracture whose treatment has been delayed for several days, fractures with failed internal fixation, and avascular necrosis. Hemiarthroplasty is absolutely contraindicated in hips that are infected (Johnson & Gebhard, In Amstutz, Ed., 1991: 923; Salter, In Eftekhar & Demarest, Eds., 1993: 469). In addition, medical conditions that affect potential fracture union and contribute to acetabular pathology (Paget's disease, renal osteodystrophy) can be considered contraindications to hemiarthroplasty; thus, total hip arthroplasty becomes an attractive alternative (Iorio, et al., 2001: 231).

2. Total hip arthroplasty in hip fracture patients is reserved for selected cases: pathologic fracture of the femoral neck with involvement of the acetabulum by tumor, patients with preexisting acetabular diseases (rheumatoid arthritis, osteoarthritis, Paget's disease), severe osteoporosis of the acetabulam secondary to a prolonged non-weight bearing period, and a salvage procedure after fixation failure or when acetabular damage has occurred (Lyons, 1997: 56S; Salter, In Eftekhar & Demarest, Eds., 1993: 471-472). Contraindication of total hip arthroplasty can be systemic or specific to the hip joint. Systemic contraindications include a preexisting severe medical condition, limited life expectancy, and nonambulatory status. Absolute specific contraindications are the presence of active infection, functional loss of the abductor muscle, a progressive neurologic disease, and advanced bone destruction. Relative specific contraindications include a prior history of joint sepsis, a neurotrophic hip joint, and limited rehabilitation potential (Meere, et al., In Spivak, et al., Eds., 1999: 305).

Some studies showed that total hip arthroplasty can provide good clinical results and is associated with good long-term survival of the prosthesis, but it was associated with an unacceptably high dislocation rate (Lee, et al., 1998: 74;

Lyons, 1997: 55S-56S). Therefore, when prosthetic replacement is chosen to treat hip fracture patients, hemiarthroplasty rather than total hip arthroplasty is preferred in most circumstances. The advantages of hemiarthroplasty, when compared with total hip arthroplasty, include a shorter operative time (because acetabular resurfacing is not necessary) and lower risk of early complications (most notably dislocation); the disadvantages include the possible development of pain in the groin and acetabular erosion (Lee, et al., 1998: 70).

Hemiarthroplasty or total hip arthroplasty for hip fractures can be done through any of variety of posterior, anterior, lateral, or trantrochanteric surgical approaches. The keys to each approach are the different muscular intervals surrounding the hip joint that are used (Di Cesare, In Spivak, et al., Eds., 1999: 109-110; Thomas, et al., In Amstutz, Ed., 1991: 216-219; Thomas, In Eftekhar & Demarest, Eds., 1993: 52-71). The selection of the surgical approach is usually a matter of the surgeon's personal choice and experience. However, there have been reports of higher rates of serious complications such as dislocation and infection after posterior approach for prosthetic replacement (Gebhard, et al., 1992: 124; Kenzora, et al., 1998: 56; Lee, et al., 1998: 72).

The prostheses of hip arthroplasty are either cemented or uncemented. Cemented prostheses are more common in the elderly (older than age 60) and sedentary patients, and after the advantages of immediate stabilization and full weight bearing immediately. Uncemented prostheses are more commonly used in younger patients. These prostheses employ a more physiologic fixation by bony growth into a porous prosthesis. Advantages include a longer life span and more secure fit of the prosthesis. The major disadvantage is non-weight or partial-weight bearing (about 30 to 40 pounds), which is needed for four to six weeks, followed by progressive weight bearing from six to twelve weeks (Cifu, et al., 2001: 5; Gustilo & Leagogo, In Gustilo, Ed., 1989: 229-230; Yarnold, 1999: 37).

In summary, various types of hip arthroplasty, depending on the patient, may be used to treat hip fracture. In an elderly patient who is strictly a bed transfer patient with minimal demands on the hip, the lower-cost Moore or Thompson prosthesis may be an option. In a household ambulator with low demands on the hip, a bipolar prosthesis provides the best option with secure fixation to the shaft by

cement. There is also the advantage of its bipolar design with decreased rates of acetabular erosion. In high-demand community ambulators in whom there is a hip disease, total hip arthroplasty is the option of choice.

Postoperative recovery and rehabilitation

Postoperative recovery

For the elderly with hip fracture, who are hospitalized for hip arthroplasty, the most important aspect of postoperative management is early mobilization to prevent the complications associated with recumbency. In the initial period, indicators of postoperative recovery used in most investigations included 1) activities of daily living, 2) hip pain, and 3) postoperative complications.

1. Activities of daily living (ADLs)

Functional recovery in the hip fracture patients is return to the prefracture level of independence as generally measured by the assistance required in ADLs and Instrumental Activities of Daily Living (IADLs) (Barangan, 1990: 20; Williams, et al., 1994b: 55). ADLs include basic needs, such as personal hygiene, dressing, toileting, eating, and moving. IADLs include skills necessary for independent living, such as ability to go shopping, meal preparation, housekeeping, laundry, telephone use, managing finances, and use of transportation (Smeltzer & Bare, 2000: 121). Factors that have been reported to be predictive of the recovery of function in activities of daily living are younger age, high prefracture physical function, high social support, low co-morbidity, hip pain, and the absence of cognitive impairment (Cree, et al., 2001: 737).

In the elderly with hip fracture, despite the successful operation in terms of healing of the fracture due to advances in operative technique and implant technology, the patient is rarely able to regain the preinjury level of function and independence (Koval & Zuckerman, 1994: 751). It has been estimated that between 31 to 59% of elderly individuals who survive a hip fracture neither recover their pre-fracture ambulatory status nor achieve their previous level of independence within the year following their fracture (Koval, et al., 1995: 152; Lee, et al., 1998: 72; Van Balen, et al., 2001: 235). Many of the patients have difficulty performing ADLs for at least six months. In some elderly patients, this may result from complications; in others it may be from deterioration of their overall mental or physical condition. Marottoli and

coworkers (1992) investigated physical function in 120 elderly patients following hip fractures and found that the subjects had decline in functions at six weeks after the fracture with little improvement by six months. At baseline, 86% could dress independently versus 49% at six months; 90% could transfer independently versus 32% at six months; 75% could walk across a room independently versus 15% at six months; 63% could climb stairs versus 8% at six months; and 41% could walk one-half mile versus 6% at six months.

Several studies (Koval, et al., 1995; Koval, et al., 1998; Young, et al., 1996) reported that almost all elderly patients were functionally dependent post hip fractures. Koval and colleagues (1995) studied ambulatory ability of 336 geriatric patients with hip fracture. The result revealed that only 41% of patients maintained their prefracture ambulatory ability at minimum follow up of one year; 40% remained ambulatory but become more dependent on assistive devices; and 12% previous community ambulators become household ambulators. Likewise, Young and coworkers (1996) demonstrated that a substantial proportion of elderly patients who had subcapital fractures do not regain the preinjury ability to perform either ADLs or IADLs within one year after the fracture. Before the fracture, 64.5% of 312 geriatric patients were fully independent in ADLs and 31% were fully independent in IADLs. By one year after discharge from the hospital, only 41.2% could perform all ADLs independently and 15.6% could carry out IADLs. The degree of recovery varied by tasks; a higher proportion of patients regained the ability to perform basic rather than instrumental tasks. Most recovery in all function areas occurred by six months after the fracture and little additional recovery was observed over the next six months. Koval and associates (1998: 24) reported similar results in a prospective series of functional recovery in the elderly with hip fracture. Of those who were completely independent in ADLs prior fracture, 59% returned to this level within three months, 71% at six months, and 73% at twelve months after hip fracture.

In other studies (Cree, et al., 2001; Van Balen, et al., 2001), the likelihood of recovery of ADLs was greatest during the first three to four months. A prospective study of 222 geriatric patients with high mental function reported that 44% of patients had regained the level of ADLs at three months after the fracture. Most commonly, declines were evident in ability to bath (40%) and dress (25%). As stairs

might also have been a problem for a large portion of these patients, 21 (13%) had not attempted to climbs stairs (Cree, et al., 2001: 740). Moreover, a study of Van Balen and colleagues (2001: 235) in 102 elderly patients at four months after fracture demonstrated that 57% were back in their original situation for accommodation, 43% reached the same level of walking ability, and 17% achieved the same level of ADLs.

Several tools have been developed to assess ADLs, and the Barthel Index is one of the tools most frequently used to measure functioning level and ability to return to independent living of elderly patients. In a study of Shepherd and Prescott (1996: 338), they investigated the dependency of elderly patients with hip fracture. The results showed that 10% of the surviving patients were classed as dependent by the Barthel Index at the time of their fracture (score < 12) and this increase to 24% at one year.

As mentioned above, the elderly with hip fracture who underwent hip surgery had functional decline postoperatively. Therefore, the assessment of ADL is important in deciding the level of assistance needed on a daily basis and in planning long-term care for the elderly postoperatively.

2. Surgical hip pain

Surgical hip pain of elderly patients following hip arthroplasty is an important indication of their recovery. Since the goal of hip surgery following hip fracture is to return the elderly to the highest level of functioning, optimal early treatment of pain is essential to attaining this goal. According to Bonica (In Bonoca, Ed., 1990: 462), after hip replacement, the patient had severe pain during movement and reflex spasm approximate 70-80% of two to six day post operation. Although postoperative pain tends to last a short duration and be acute in nature, it may continue longer depending on the extent of the surgery, the pain threshold and pain tolerance, and response to pain of the patient. Thus, immediately following surgery, effective assessment and control of pain are vital to prevent unnecessary suffering and to facilitate early mobilization.

Manifestations of pain are multidimensional and often include alterations in affect, physical function, and quality of life. Pain inhibits movement and early mobilization, once more increasing the likelihood of complications of immobility (Bonoca, In Bonica, Ed., 1990: 464-467; Nelson, et al., 1990: 79). Recent

data indicate that persistent postoperative pain and limitation of movement may be associated with marked impairment of muscle metabolism, muscle atrophy, and significantly delayed normal muscle function (Cousin & Power, In Wall & Melzack, Eds., 1999: 470). Therefore, poorly controlled pain can significantly influence a patient's short-term and long-term recovery after orthopedic surgical procedures, primarily because it interferes with the patient's ability to perform physical therapy exercises (Pasero, et al., In Margo & Chris., Eds., 1999: 28).

In the patients with hip fracture, hip pain was important predictor of functional dependence (Cree, et al., 2001: 740). Feldt and Oh (2000: 41-42) who studied postoperative pain in 85 elderly patients with hip fractures reported that pain severity with movement in the hospital is one of the predictors of functional outcomes two months postoperatively, and undertreated postoperative pain contributes to poor functional outcomes. Similarly, Rosswurm and Lanham (1998: 18) investigated the home care need of 507 elderly hospitalized patients. The results demonstrated that pain was the major problem of elderly patients experienced at home during the 30 days after discharge. Furthermore, a prospective outcome study was performed on 270 elderly patients who sustained a femoral neck fracture and underwent hemiarthroplasty. The results showed that pain in the affected hip was reported by 46.1% of patients at two months and 38.1% at twelve months (Kenzora, et al., 1998: 55). On the contrary, Chan and Gill (2000: 211) found that non-of the 40 elderly patients with intertrochanteric fracture had any hip pain at the six-month follow-up.

The effect of pain on functional status is particularly important among elderly patients. Unrelieved pain prolongs the stress response and can adversely affect the patient's rehabilitation. Good pain management can improve the patient's performance of the activities necessary for a smooth recovery. Thus, it is important that clinicians assess and treat pain properly. A variety of tools are available to assess pain in elderly patients. The visual analog scale has been reported as highly effective for assessing pain in elderly patients (Flahaerty, 2001: 236). Because pain is a subjective experience, for elderly patients who have no cognitive impairement, the patients' own subjective report is probably the best indicator of pain. In addition, decreased psychomotor function can affect the elders' ability to respond to certain methods of assessment. Declining response time should be a consideration. Quicker

and less fatiguing methods may be most appropriate, such as the visual analogue scale (Herr & Mobily, 1991: 14).

Once the patient's pain has been thoroughly assessed, various modalities are explored to manage the pain. Conservative, nonphamacologic modalities such as relaxation techniques, as well as hot and cold applications, are often initial nursing interventions. These conservative modalities may be used alone or with pharmacologic modalities (Novy & Jagmin, 1997: 54). Psychologic and cognitive modalities may be used at times in pain management in the elderly population. Psychologic therapy and progressive relaxation techniques are the most common methods implemented to help reduce or eliminate pain. Relaxation techniques decrease a person's anxiety and thus help lead to an enhanced sense of control of one's pain. Hypnosis, a state between being awake and asleep, and guided imagery or the use of symbols to represent a person's feelings is also used to reduce pain in elderly patients (Novy & Jagmin, 1997: 55).

In conclusion, the presence of pain can prolong recovery because it can interfere with the patient's return to normal activity. As a result, it is important that clinicians assess and treat pain properly. As rehabilitation efforts require movement, which is associated with higher pain intensity, there is a need to reconsider the level of analgesia required before activity or therapy. Furthermore, the assessment of pain during movement may yield more helpful information about the patient's status and ability to work toward recovery. Therefore, the reduction of postoperative pain can be considered as a strategy to promote the rate of recovery.

3. Postoperative complications

Postoperative complications affect the patient's recovery and functional outcome. Consequently, early recognition and treatment of complications are extremely important. Because elderly patients with hip fracture present a complex array of medical and functional problems, the risk of medical complications postoperatively is high (Grisso & Kaplan In Hazzard, et al., Eds., 1994: 1325). The complications following hip arthroplasty, which consist of orthopedic and medical complications, can be classified chronologically. Immediate postoperative complications include infection, deep venous thrombosis, pulmonary embolus, dislocation, urinary tract infection, pneumonia, pressure ulcer, muscle atrophy, and

joint stiffness. Late postoperative complications include loosening and heterotopic ossification. Details of each complication are described as follows:

3.1 Infections

Infections are one of local complications of the hip arthroplasty itself that can lead to total and irrevocable failure. Altered host resistance, diabetes mellitus, poor nutrition, and obesity in the elderly are contributing factors to increased rate of infection. Infections after hip arthroplasty are usually divided into superficial and deep varieties. Superficial wound infections occur early in the postoperative period and are characterized by wound swelling, erythema, and discharge with or without persistent fever. They are best managed by antibiotic treatment, local debridement, and appropriate wound care (Swiontkowski, In Brower, et al., Eds., 1998: 1821). Deep infections may arise before or after fracture healing, even several years after the initial surgery, and they have a high morbidity. It can be difficult to diagnose late deep infection. Symptoms include unexplained pain in the hip, decreased range of motion, and an increased sedimentation rate (Baumgaertner, et al., In Browner, et al., Eds., 1998: 1875).

At present, the rate of infection with total hip replacement has decreased significantly with improved techniques and the use of prophylactic antibiotics. The reported incidence of postoperative superficial infection varies from 2 to 8%, and deep infection has varies from 0 to 0.6% (Chan & Gill, 2000: 210; Lee, et al., 1998: 72; Koval, et al., 1995: 153; Zuckerman, et al., 1992: 219). However, infection rates have been higher among patients undergoing arthroplasty using the posterior approach compared with other approaches. This probably reflects the risk of fecal contamination because of the proximity of the incision to the perineal area (Koval, et al., In Dee, et al., Eds., 1997: 472; Koval, In Spivak, et al., Eds., 1999: 540).

3.2 Deep venous thrombosis and pulmonary embolism

The incidence of deep venous thrombosis (DVT) may be as high as 10% (ranging from 5 to 20%) of patients undergoing hip replacement. Of these, up to 10% may embolize to cause symtomatic pulmonary emboli (Meere, et al., In Spivak, et al., Eds., 1999: 308). The majority of cases occur in the first week, and the risk for DVT declines significantly after the 13th to 17th postoperative days. (Cifu, et al., 2001: 9). There are several reasons for the high risk of DVT following hip

raplacement, including twisting and kinking of the common femoral vein; venous endothelial damage caused by retractors and surgical manipulation; bone reaming and preparation (which increases thromboplastin antigen); heat-generated polymerization during surgery; and venous stasis resulting from immobilization, bed rest, and advanced age (Yarnold, 1999: 38). For this reason, anti coagulation prophylaxis is a standard component of postoperative arthroplasty protocols. Prevention of DVT consists of early mobilization and rehabilitation, lower extremity exercises, elastis stockings, external pneumatic compression devices, and medications (anticoagulation). The clinical diagnosis of DVT should be entertained from a high clinical suspicion, since most patients are not present with such classic symptoms as a positive Homans' sign (calf discomfort with forced dorsiflexion of the foot), edema, pain, or thrombosis (Meere, et al., In Spivak, et al., Eds., 1999: 308).

Pulmonary embolism, resulting from DVT, is the most frequent cause of death hip arthroplasty. Patients with a pulmonary embolism may be severely dyspneic, tachycardic, apprehensive, and diaphoretic. They may have severe chest pain. Upon examination, elevated white blood cell counts, fever, and hypoxemia may also be noted. Blood gases will show a decrease in PaO_2. Though a chest X-ray may be ordered to rule out pneumonia, diagnosis of PE is confirmed by a positive ventilation-perfusion (V/Q) scan (Yarnold, 1999: 39).

3.3 Delirium

Delirium, which develops in 30 to 50% of patients, usually occurs on postoperative days 1-5 and resolves by day 7. Its occurrence is not related to type of anesthesia used or duration of surgery (Perez, 1994: 36). Delirium and in-hospital mortality is strongly correlated; therefore, it is imperative to identify and correct its cause. Factors commonly associated with this syndrome include anticholinergic medications, hypoxia, infection, and urinary retention. Limiting the duration of narcotic pain medication (i.e. switching to non-narcotic agents by 3-4 days after surgery), avoiding benzodiazepine and other sedating medications, early discontinuation of indwelling catheters and other potential sources of infection, and rapid mobilization will limit common iatrogenic causes of post-surgical delirium (Cifu, et al., 2001: 11).

3.4 Prosthetic joint dislocation

Prosthetic joint dislocation is the most common immediate postoperative complication after hip arthroplasty (Meere, et al., In Spivak, et al., Eds., 1999: 310). It usually occurs during the early postoperative period or with the initiation of weight bearing. There are numerous factors that increase the risk of dislocation, including component malposition, smaller head size, infection, impingement of the femoral component on bone or acetabular components, and surgical approach (Berquist, et al., In Bequist, Ed., 1995: 323; Meere, et al., In Spivak, et al., Eds., 1999: 308). The reported incidence of dislocation after hemiarthroplasty varies from 0.3 to 4.9%, the posterior approach being associated with a higher dislocation rate than the other approaches (Calder, et al., 1996: 393; Gebhard, et al., 1992: 124; Lu-Yao, et al., 1994: 19; Kenzora, et al., 1998: 56; Koval, et al., 1995: 153). The average incidence of dislocation after total hip arthroplasty was approximately 2 to 11% (Gebhard, et al., 1992: 124; Lee, et al., 1998: 72; Lu-Yao, et al., 1994: 19).

The diagnosis of dislocation of the prosthesis was based on clinical signs, physical examination, and, principally, radiographic evaluation. Posterior dislocations are usually the result of hip flexion, adduction and internal rotation greater than 90 degrees, and are a greater risk in patients who require lateral or posterior surgical approaches. The patients who require anterior surgical approaches are at a greater risk for anterior dislocation, which is usually caused by hip extension or external rotation. Hyperextension can also lead to dislocation using an anterior approach (Cifu, et al., 2001: 7). Both types of dislocations can usually be treated conservatively, using closed reduction, with or without general anesthesia; however, revision of malaligned components in recurrent dislocation should be considered (Nugent, et al., 1995: 152).

3.5 Urinary tract infection

Urinary tract infection is the most frequently encountered genitourinary problem seen after hip fracture. An incidence of urinary tract infection reported varies from 1.8 to 9.1% of patients postoperatively (Chan & Gill, 2000: 210; Gebhard, et al., 1992: 124; Koval, et al., 1995: 153: Zuckerman, et al., 1992: 219). Urinary tract infection usually follows invasion of the urinary tract by the ascending

route (e.g. by indwelling catheters) (Perez, 1994: 36; Yarnold, 1999: 38). The prevalence of urinary tract infection is more common in women than men, hence supporting the importance of the ascending route of infection. In women, the uretra is short and in close proximity to the vagina and perineum, making bacterial contamination more likely. The risk factors for the increased incidence of urinary tract infection in the elderly include bladder dysfunction, increased prostate size relaxation of pelvic musculature, and concomitant illness (Gross & Levine, In Wenzel, Ed., 1993: 904). The majority of elderly individuals with bacteriuria do not have typical symptoms of cystitis (dysuria, urgency, frequency) or pyelonephritis (fever, flank pain). Nevertheless, generalized complaints of malaise, insomnia, and fatigue are common in this population (Johnson, 1991: 245). The detection of significant numbers of pathogenic bacteria from culture of the urine has remained the goal standard for the diagnosis of urinary tract infection (defined $\geq 10^5$ CFU/ml of a single pathogenic bacterium) (Pappas, 1991: 316).

3.6 Pneumonia

Pneumonia has been reported in approximately 3.6 to 4.9% of patients with hip arthroplasty (Gebhard, et al., 1992: 124; Koval, et al., 1995: 153). Notwithstanding the importance of age-related structural, functional, and immunologic changes, the principal factor governing both the risk and outcome of pneumonia in the elderly is concomitant illness. Many diseases that increase in prevalence with aging are associated with altered host defenses, including chronic obstructive pulmonary disease, neurologic impairment, cardiovascular disease, diabetes, renal failure, malignancy, and gastrointestinal disease (Fein, 1994: 1016). The classic pneumonia picture of high fever and chills, productive cough, and pleuritic chest pain may not apply for elderly patients. Often, confusion and deterioration in baseline function and performance of activities of daily living are the lone hallmarks of pneumonia among elderly patients. Other common clinical symptoms of pneumonia in elders include change in mental status, failure to thrive, sepsis, falls, tachypnea, tachycardia, concurrent CHF, and incontinence (Mick, 1997: 99). However, the demonstration of a pulmonary infiltrate on chest x-ray is the most important for diagnosis of pneumonia (Bartlett, In Hazzard, et al., Eds., 1994: 569).

3.7 Pressure ulcers

Pressure ulcers have been reported to occur in between 2 and 64% of hip fracture patients (Chan & Gill, 2000: 120; Gunningberg, et al., 2000: 1159; Van Balen, et al., 2001: 239). Occasionally they are the result of a debilitated patient lying unassisted on the floor for a prolonged period after a fall. More often they develop in the hospital before, during, or after surgery for hip fracture. Pressure ulcers in the elderly are related to the following factors: age-related changes in the skin and underlying tissues, malnourished condition (obese or emaciated), edematous, lack of bowel and bladder control, lack of adequate circulation, and immobilization (Wienke, In Maher, et al., Eds., 1994: 71). In addition, hip fracture leading to immobility and limited activity levels increases the risk of pressures. Gunningberg and coworkers (2000: 1159-1160) reported 18% of hip fracture patients had pressure ulcers on arrival at the hospital and another 45% developed pressure ulcers during their hospital stay (by the forth post-surgery day). Thirty-five percent of these patients were discharged with pressure ulcers. The most frequent ulcer locations include the sacrum, buttocks, and heels. Pressure ulcers can be prevented by placing patients on pressure-relieving mattresses, scheduled turning, maintaining adequate hydration and nutrition, and minimizing unnecessary delays in the postoperative recovery area.

3.8 Muscle Atrophy

Muscle atrophy is documented consequences of immobilization and bed rest (LeBlanc, et al., 1988: 626; Wienke, In Maher, et al., Eds., 1994: 65). In the study of healthy subjects after six weeks of bed rest, it was reported that an average weekly loss of muscle strength in the thigh or knee extensor and muscle mass was 4 to 5% and 3%, respectively (Berg, et al., 1997: 185). Muscle atrophy in elderly patients after hip arthroplasty was related to several factors, including muscle strength that decrease with age, the duration of immobilization, and delay in postoperative recovery. In addition, increased metabolic needs as a result of fever or trauma contribute to the rapidity of the decline in muscle strength by accelerating protein catabolism (Wienke, In Maher, et al., Eds., 1994: 66). The loss in muscle strength has been attributed to a decreased in skeletal muscle mass (Berg, et al., 1997: 185).

In muscle atrophy studies, quadriceps muscle is one with most common rapid changes (Arendt, Ed., 1999: 40; Magee, Ed., 1997: 519). According to the study of 47 elderly women who had suffered from a hip fracture three to 36 months previously, the quadriceps strength was an average 18% lower in the fracture leg than in the contralateral leg. The quadriceps strength was markedly affected in these patients and was associated with walking ability and level of physical activity (Madsen, et al., 2000: 39). In addition, Reardon and colleagues (2001: 9) who investigated quadriceps muscle wasting persisting five months after total hip arthroplasty found that all subjects had significant atrophy of the ipsilateral compared with the contralateral quadriceps muscle. Assessment of muscle atrophy can be roughly estimated by measurement of the girth of the limb (Magee, Ed., 1997: 572; Wienke, In Maher, et al., Eds., 1994: 65).

3.9 Joint stiffness

Joint stiffness that occurs after hip surgery may make the elderly lose stable when transferring and ambulating, and leads to difficulty in rehabilitation. Joint stiffness is the adverse effects of prolonged immobilization. Changes in joint structure can be accelerated when immobilization is accompanied by pain, edema, trauma, impaired circulation, spasticity, inflammatory exudate, and/or degenerative changes in the joint (Milde, In Hart, et al., Eds., 1981: 71-72). When a joint is immobilized, severe deterioration occurs: loss of the joint space with proliferation of intracapsular fatty connective tissue and growth of adhesions between tissue, ligaments, and bones leading to decreased range of motion (joint stiffness) (Lisanti, In Mahaney & Flynn, Eds., 1983: 128). In elderly patients, stiffening of the knee following prolonged immobilization or injured lower extremities is a common clinical entity (Mobily & Skemp Kelley, 1991: 5-10; Wiroon Laupatkasame, B.E.2529: 381). Changes in an immobilized joint can occur in a matter of weeks. Bottle and colleagues (1988: 15) reported that the decrease in collagen mass is dependent on elapsed time of immobilization with a 5% mass reduction occurring at nine weeks and 25% reduction at twelve weeks.

3.10 Prosthetic joint loosening

Prosthetic joint loosening is one of the most common complications following hip replacement. New onsets of pain or radiolucency on X-

ray along the edge of the prosthesis are common indicators of loosening. Specifically, loosening is categorized as septic or aseptic. Aseptic loosening may be asymptomatic and only radiologic (2 millimeters or more of lucency parallel to the bone-cement interface, any lucency parallel to the prosthesis-cement interface, or fracture of the cement), or symptomatic (i.e. painful). Decreased weight bearing for a two-to-six week period is typically recommended. Surgical revision is often necessary when prosthetic loosening occurs (Cifu, et al., 2001: 8). The advent of newer prosthetic components, improved bone cement, and improved surgical techniques have decreased the incidence of prosthetic loosening. The incidence of loosening was commonly reported in long term studies. For example, in a long-term study (minimum 10.1 years) of 126 consecutive total hip arthroplasties performed with cement in patients who had an acute fracture of the femoral neck, it was found that 5% of the patients had aseptic loosening (Lee, et al., 1998: 73).

3.11 Heterotopic Ossification

Heterotopic ossification is the deposition of bone in aberrant locations, typically around the hip capsule, with resultant loss of motion. It has been reported to occur in as much as 53% of hip arthroplasty patients (Meere, et al., In spivak, et al., Eds., 1999: 309). It is most frequently described in associations with total hip arthroplasty (either elective or following hip fracture), but with less frequency reported with hemiarthroplasty (Cifu, et al., 2001: 8). The majority of patients with heterotopic ossification suffer little functional disability. Associated factors include male gender, young age, previous history of heterotopic ossification, traumatic arthritis, ankylosing spondylitis, and diffuse idiopathic skeletal hyperostosis syndrome. Heterotopic bone formation in patients at risk is prevented by administration of either radiation given before postoperative day 4 or indomethacin (Meere, et al., In spivak, et al., Eds., 1999: 309).

As mentioned above, ADLs, surgical hip pain, and postoperative complications are indicators of postoperative recovery of post hip-arthroplasty patients. In addition, factors that influence the recovery of elderly hip fracture patients represent important considerations to predict the outcome. Barangan (1990: 20-23) has summarized factor that influence recovery including gender, age, functional status, type of fracture and surgical repair, general medical condition, iatrogenic

complication, confusion, physiologic stability and time of surgery, self-perception of health, depression, and psychosocial factors. Numerous studies have identified factors predicting the outcome of the patients after hip fracture. Factors associated with poor functional recovery are advanced age, more comorbidities, living alone before sustaining a fracture, cognitive impairment, male gender, poor self-rated health, and high prefracture physical function (Cree, et al., 2000: 283, 2001: 737; Koval, et al., 1998: 24). On the other hand, the predictors of greater independence are younger age, having a femoral head replacement, and less affective distress (Williams, et al., 1994: 59). For most of these studies, results showed that combination of factors is more significant than each one alone to predict the outcome of recovery.

In conclusion, elderly patients suffering from recent hip fracture and surgical repair with hip arthrpoplasty are borderline between orthopedics and geriatrics. They have a significant recovery of impairment and disability despite age and comorbidity. Furthermore, they may develop complications leading to prolonged hospitalization and recovery. Therefore, rehabilitation is very important in these patients.

Rehabilitation

Rehabilitation goals for the elderly hip fracture patients are maintenance of independence in activities of daily living and restoration to an acceptable quality of life (Barangan, 1990: 26). It is imperative that rehabilitation program begin early (typically by post-operative day 1), before complications and disabilities develop, be interdisciplinary in nature, continue until the person reaches their maximal functional level, and be focused on the goals of the patient and their family (Cifu, 2001: 7). Moreover, sufficient time must be allowed to reach the goal set because it is expected that longer time is needed for rehabilitation of elder patients (Barangan, 1990: 26).

Health maintenance for hip arthroplasty patients involves nursing interventions in three areas: maintenance of existing abilities, retardation of deterioration, and prevention of complication (Matteson & McConnell, 1988, cited by Barangan, 1990: 26). All patients should have a rehabilitation program initiated immediately postoperatively to institute a program of bed level range of motion and strengthening and conditioning exercises. This program is taught to the patient and

caregivers so that it may be performed throughout the day. Chair level exercises (e.g. active quadriceps exercises and ankle pumps) are implemented. On the 2nd to the 5th postoperative days, the program consists of bed to chair mobility using a standing pivot transfer, wheelchair skills, pregait (e.g. sit to stand standing balance and tolerance) and gait activities (parallel bars to walker to crutches), bathroom skills, ADLs training, and continued performance of range of motion, strengthening and conditioning exercises. Advanced skills in transfers, mobility, and ADLs are instituted by the 6th to the 10th postoperative days and equipment is procured (e.g. raised toilet seat, bathroom grab bars, walker and/or rental wheelchair) in preparation for discharge (Cifu, 2001: 8).

In the hip fracture patients undergoing hip arthroplasty, restrictions on positioning to avoid dislocating the prosthesis (e.g. avoid hip flexion beyond 90 degrees, avoid adduction of the affected leg beyond midline, maintain partial weight-bearing status for approximately two to three months) are very important. Therefore, home care regimen of the patients undergoing hip arthroplasty includes medication instruction, positioning restrictions, weight-bearing restrictions, ambulation techniques with assistive devices, preventing of fall instructions, and signs and symptoms suggestive of complications (Marek, In Phipps, et al., Eds., 1999: 1939). In addition, for elderly patients being discharged to home, they will need continued support in performing ADLs and other activities at home. Hazards in and around the home that could contribute to another fall must be eliminated. The preparation of home environment includes the type of abode, steps to entry and ramps, steps and obstacles within the home, type of flooring, wheelchair and walker accessibility, and location of bedroom, kitchen and bathroom (Cifu, 2001: 7). This can be accomplished through educating the patients as well as the family.

In summary, hip fracture is one of the most common physical impairments for elderly patients especially who underwent hip arthroplasty. The older the individual, the lower the chance of regaining prefracture functional status. With shortened hospital stays, elderly patients with complex health needs are being discharged from hospitals sooner and are often dependent following hospital discharge. Therefore, these patients often return home before their recovery is

complete and require assistance from family caregivers in order to be looked after at home.

Family Caregiver of the Elderly Post-Hip Arthroplasty

A family caregiver or informal caregiver is a relative, friend, or significant other of a care recipient who provides unpaid but important components of care to on ill, infirm, or dependent care recipient in the home or community (Davis, 1992: 2; Yupapin Sirapo-ngam, B.E.2539: 86; Weuve, et al., 2000: 429). Yupapin Sirapo-nagm (B.E.2539: 86) suggests that the definition of family caregiver is considered in four aspects: 1) The caregiver who assumes major responsibility for providing care for care recipient may be parent, spouse, child, relative, friend, or significant other of care recipient. 2) The care recipient must be a person who has a disease, deformities, some degree of vulnerability or impairment of physical part, cognition, or emotion effects of chronic health problems that limits their ability to perform ADLs and need ongoing assistance. 3) The family caregiver does not receive pay for service provided. 4) The situation of caregiving occurs in the home or community, not in institution (such as hospital or nursing home).

The family caregiver is categorized into primary caregiver and secondary caregiver, according to responsibility of care. The primary caregiver is a main care provider who has been responsible regularly and continuously for giving direct care for the care recipient and using more time in care than the other. On the other hand, the secondary caregiver involves in the part of caregiving and serves as a primary caregiver's assistance (Yupapin Sirapo-ngam, B.E.2539: 86). Even when the patients has multiple caregivers, there is usually one person who serves as the main or primary caregiver (Sankar, 1991 cited by Lubkin & Payne, In Lubkin & Larsen, Eds., 1998: 258). Thus, in the family, only one member of the family is a primary caregiver or person who is directly and continuity caring for the patient at home more than the others. Family members are major source of informal care provided for the elderly post-hiparthroplasty patients.

Family caregiver's role and responsibility

The process of taking on the caregiving role is termed role acquisition, and it is triggered by an illness, injury, or frailty in an individual who then needs care by a

caregiver (Schoenfelder, et al., 2000: 51). Caregiveing demands can be defined as difficulties or challenges with respect to providing at home care to a family member (Jensen & Given, 1991: 181).

Caregiving demands of the patient reflect the caregiver's responsibilities for providing assistance to care for the patient that results from three factors described below (Yupapin Sirapo-ngam, B.E.2539: 87-88):

1. Physical or functional impairment results from the progressive nature of the disease and disabilities or deterioration of many organs, which affect dependence in self-care activities and instrumental activities of daily living of the patient. Furthermore, specific care for illness requires specific care from the caregivers. This caregiving task can be expected and used to planning care for the patient.

2. Cognitive impairment or behavior changes (i.e. dementia, depression, and paranoid) in elderly patients of Alzheimer's disease whose caregiving demands can be expected. The caregiver may feel uncertain and have more difficulty to plan adequately for helping the patient.

3. Emotional changes or personal needs of the patients, with the demand occurring almost all the time, depending on each individual and the effect of the patient's disease.

In general, caregiving demands of the care recipient lead to the following four types of caregivers' role and responsibilities as follows (Davis, 1992: 2-3; Yupapin Sirapo-ngam, B.E.2539: 87-88):

1. Direct care services. These services include assistance in ADLs and/or IADLs, dealing with behavior problems and specific care in each disease, as well as monitoring the health status and behavior of the care recipient.

2. Emotional support. These services include initiating and maintaining social interaction with the patient. Moreover, caregivers must evaluate recipients' feelings and avoid making recipients feel worthless.

3. Mediating with formal organization. These services include managing financial resources, contracting with service people, and filling out legal forms or other documents.

4. Financial assistance and management. These services include basic needs and necessary extras.

The family caregivers may provide one or more of these services during a period of caregiving.

Caregiving demands related to elderly post-hip arthroplasty

Consequence from hip arthroplasty can include substantially reduced functional status or even lead to death, and many of those who recover from hip arthroplasy require additional assistance in daily living. As mentioned earlier, previous studies (Cree, et al., 2001; Guccione, et al., 1996; Koval, et al., 1995; Marottoli, et al., 1992) have demonstrated that there is often a substantial decline in function following hip arthroplasty. Based on a study of Siriratana Snguanchua (B.E.2540) which investigated self-care deficit in post hip replacement patients, most of patients were unaware of requisites in weight (45%), consumption of five food groups (44%) and the proper way to step up and down (41%). Therefore, the family caregivers have to help their relatives with ambulation; ADLs especially in bathing and dressing; IADLs (e.g. laundry, transportation, cooking, cleaning and shopping); mental and spiritual support; and financial support. Furthermore, research indicated that family caregivers had sense of confinement and/or burden, difficulties in providing, ADLs assistance and in performing IADLs tasks, problems in managing patients' behavior, mood and demands of attention, and conflict with their other roles (Williams, et al., 1996).

Congdon (1994) investigated the hospital discharge experience of the elderly with hip fracture who had hip surgically repaired, their family caregivers, and nurses. Family caregivers helped the patients including the following activities of personal care: bathing, dressing, preparing meals, arranging for bathroom and bedroom modifications, hiring home aides, dealing with bureaucracies such as Facilitating Medicare payments, arranging meals on wheels and physical therapy, home visit, and offering affection and companionship. All family members experienced several of the following difficulties: rearranged home and employment schedules, missed work, worry, anxiety, depression, sacrifice of leisure activities, increased financial burden, fatigue and sleep problems, an increase in their own age-related health problem, communication difficulties with health care professionals, lack of confidence in their

own ability to care for the elderly person, age-biased remarks from hospital staff, and hospital-created dependencies of the patients.

Additionally, depression is the most common function psychiatric disorder of the elderly, and this may be owing to retirement, loss of spouse and other loved one, loss of self-image due to normal aging, as well as loss of independence and function (Springer & Brubaker, 1990: 67-69; Browning & Hogstel, In Hogstel, Ed., 1994: 418). The literature review on the prevalence of psychaitric illness in older people with hip fracture has demonstrated that the rates of depression varied in 9-47% (Holmes & House, 2000). Therefore, family caregivers should provide emotional support for their relatives as well as performing ADLs to maintain the patients' health and well-being. Because depression affects bodily function, causing alterations in rest and sleep, in nutritional intake and metabolism, and in the perception of pain and other somatic symptoms; thus, it affects the patients' recovery. This is supported by the result of Sirisuda Saukhumket (B.E.2541) who investigated level of family social support (consisting of four domains: attachment, opportunity of nurturance, social integration, and availability of information; emotion and material help) and level of stress of the elderly with hip fracture. The result showed high negative relationship between overall family social support and stress with statistical significance. The elderly with hip fracture who have high level of family social support may have reduced stress. Nurses can promote the level of family social support by promoting family members to participate in caring for the elderly with hip fractures.

Impact of Caregiving and Caregivers' Adaptation

Caring for a family member who has a chronic illness or disability requires a significant expenditure of time and energy over long periods; involves tasks that may be new, unpleasant, or comfortable; and is often a role that has not been anticipated or chosen (Biegel, et al., 1991 cited by Lueckenotte, In Lueckenotte, Ed., 1996: 924). Most of the research on family caregivers has been focused on impact their caregiving role and the caregiving process on caregivers. Impacts of caregiving have been both positive and negative. However, most research has been focused on the negative impact that caregiving has imposed on family caregivers. Negative family caregiver outcomes associated with home care for a physically and/or cognitively impaired elder are well documented in the literature.

As a result of caring for a dependent elder, family members can experience a decline in their own health and well-being, increased life stress, increased depression symptoms, family or marital conflicts, and feelings of burden and social isolation (Davis, 2001: 719). Sadness, grief, and decreased life satisfaction are also common among caregivers (Lueckenotte, In Lueckenotte, Ed., 1996: 925). Results of the study of Faison and colleagues (1999) demonstrated that increased caregiver burden is related to increased activities of care performed for the elderly relatives by caregivers. This included direct care activities (ADLs), specifically bathing, transfer, and continence-related measures. It also included indirect care activities, including meal preparation, helping with medicines, and housework. The increased activities of care is a stressor that taxes the caregiver's time, energy, and physical abilities. This stress, over time, can result in emotional and physical fatigue and role overload. Providing more care to a patient also has been associated with increased caregivers' stress (Bugge, et al., 1999; Penning, 1998). In addition, the impact of caregiving is influenced both by the relationship between the caregiver and the care recipient and whether the caregiver and care recipient living in the same household. Caregivers who live more closely to the care recipient or who live in the same household reported more level of burden and stress (Hoyert & Seltzer, 1992).

However, not all aspects of caregiving are negative. Some caregivers reported increased gratification, feelings of usefulness, improved relationships with the person being cared for, or increased pride in their own abilities to meet new crises (Strawbridge, et al., 1997: 505). Adult child caregivers often fell "obligated and affection" to provide care to a parent. In these situations, care is provided, in essence, on a quid pro quo basis, since the parent provided care and nurturing to the child during the formative years (Carpenter, 2001: 2; Given, et al., In Maas, et al., Eds., 2001: 683). Jones (1995 cited by Jones, et al., 2001: 134) has identified "paying respect" as the basic process of caring for elderly parents by Chinese and Filipino American women.

In Thailand, Kespichayawattana, J. (1999) investigated the impact of caregiving of the frail elderly on caregivers. The results showed that the negative consequences of caregiving situation are frustration with other family members, burden, deterioration of the caregiver's health, petty conflict with the care receiver,

physical strain, stress, feelings of quit, and social isolation. On the other hand, the positive consequences of caregiving situation are happiness, sense of self-pride, recognition of praise from others, warmth, attainment of merit, and feelings of being lucky. Monkong, S. (1999) found that the level of caregivers' burden was low among primary caregivers of Thai elderly with hip fracture. It could be explained that the sense of filial responsibility to dependent elderly family members in the Thai culture has become an important norm that embodies issue of respect, responsibility, family harmony, and sacrifice in caring for Thai elderly. Thai primary caregivers might not perceive elderly care as a burden.

The physical health of the caregiver can be compromised by the stressors. According to Zarit (1990 cited by Sirapo-ngam, Y., 1994: 1) caregivers' stress is derived from two major sources: primary and secondary stressors. Primary stressors are demands that result from the elder's illness and disabilities, while secondary stressor are the consequences of providing care in other areas of the caregiver's life. Twenty to fifty percent of caregivers reported that they spent more than ten hours per day on caring for the care recipient. Because of the attention needed to manage and provide care for the care recipient, family caregivers have little time to attend to their own health needs, and their own health status may deteriorate (Given & Given, 1991: 86-87). In addition, the emotional health of the caregiver is influenced by the demands of caregiving. For example, the results of the study of Bull (1990) and Sheehan & Nuttall (1988) found that caregivers providing care to the elderly with greater function impairment (ADLs) experienced greater strain and burden in their caregiving role.

Used of the Roy Adaptation Model in nursing practice with caregivers of dependent elders may help nurses identify specific response to complex problem. According to the Roy Adaptation Model, the responses to caregiving of the elderly post-hiparthroplasty patient as follows: focal stimulus refers to the demands of caregiving or dependent level of the elderly post-hiparthroplasty patient, contextual stimuli refer to caregiver's age, gender, and relationship to the patient, residual stimuli refer to caregiver's attitude, experience, and expectation, physiologic mode refer to physical health of caregiver, self-concept mode refer to emotional health of caregiver, interdependent mode refer to relationships of caregiver with significant others and

support system, and role function mode refer to functional status of caregivers. The results of caring for dependent elders, responses of family caregivers in each of four modes of the Roy Adaptation Model were both the positive and negative aspects. Hence, nursing interventions can be developed to promote adaptive (positive) responses of caregivers and to convert effective responses to adaptive ones. As Roy (1999:55) stated that the goals of nursing are to assist the person to adapt in each of four modes and to decrease ineffective responses, there by contributing to health, quality of life, and dying with dignity.

The Roy Adaptation model has been used as a framework for nursing research in the caregiving area by numerous researches. The longitudinal study of Smith (1989 cited by Sirapo-ngam, Y., 1994: 18-19) used the four modes of adaptation in the Roy Adaptation Model (physiologic, self-concept, role function, and interdependent modes) as a framework to guide a study of 38 middle-aged daughters of dependent elderly parents. The design was to detect change in caregivers' burden and changes in the four adaptive modes. Analysis of caregivers' burden scores indicated a moderately high perception of burden that remained stable throughout six weeks of the study. As a result, a relationship between change in caregivers' burden and change in the four adaptive modes could not be assessed.

Smith and coworkers (1991 cited by Sirapo-ngam, Y., 1994:19) studied how caregivers adapt to having ventilator-dependent adults at home. The four adaptive modes of the Roy Adaptive Model were used as a framework for analyzing the interview data of 20 caregivers. Both the positive and negative responses to caregiving were identified, with the majority of responses being concerned with the role mastery, self-concept, and dependency issue. Positive responses reflected confidence in care, satisfaction with the decision to care for their relative at home, and improved quality of life. Negative responses reflected the burden of caregiving, the dependence of the patient on the caregiver, resentment, and hopelessness.

Shyu (2000) studied the role turning between caregivers and care receivers during the discharge transition based on the role function mode of the Roy Adaptation Model. The result revealed that role turning was the transitional process used by caregivers and care receivers to achieve a harmonious pattern of caregiving and care receiving in moving from hospital to home. The researcher explained that when doing

the role turning, just as in turning a radio channel, the caregiver have to adjust his or her behaviors, attitudes, and expectations to receive messages from and get in touch with the care receiver, so that he or she could play the role of caregiver appropriately. Also, the care receiver has adjusted his or her behaviors, attitudes, and expectations to receive messages from and get in touch with the caregiver, so that he or she could play the role of care receiver appropriately and receive the help he or she needs.

In Thailand, Somnuk Sakunhongsophon (B.E.2540) investigated the effectiveness of using the Roy Adaptation Model of Nursing as nursing intervention to alleviate the stress and to develop the adaptive capabilities of caregivers of patients with terminal cancer. The results revealed that the caregivers' stress had been alleviated after providing nursing intervention and the caregivers' adaptive capabilities had been developed. The research findings seemed to support the belief that using the Roy Adaptation Model of Nursing could alleviate stress and develop adaptive capabilities of caregivers of terminal cancer patients.

Chuchuen Cheewapoonphon (B.E.2541) tested the effects of the following causal factors: patients' health, caregivers' sense of coherence, and caregiver burden on family caregivers' adaptation within the conceptual framework of the Roy Adaptation Model. The results showed that the caregivers' sense of coherence affected all modes of adaptation, caregiving burden affected only the physical and role function modes, and the patients' health affected the physical, self-concept, and role function modes.

In orthopedic nursing, the qualitative study of Showalter and associates (2000) investigated the experiences and patients' and their spouses' needs after total joint arthroplasty. It was found that spouses experienced feelings of insecurity and being overwhelmed. The patients and their spouses pointed out that health care professionals must be sensitized to the fact that some of the knowledge and skills acquired in the hospital may not be easily transferable to the home (e.g. getting out of the hospital bed is not the same as getting out of the bed at home). Home visits by knowledgeable health care professionals was suggested as one way to help patients and family members cope with the uncertainty surrounding the transition back into the home. Couples also needed education with recognition that the home and hospital environments were different so that preparing patients and their caregivers for

discharge required health care professionals to acknowledge and plan to help them deal with those differences.

Education and training programs provide caregivers with increased knowledge concerning the aging process, information on services for older persons, and effective skills for caregiving. The programs are based on the premise that increased knowledge and skills would increase caregivers' competence and eliminate excess burden and distress (Given & Given, 1991: 89), as well as promote caregivers' adaptation (Somnuk Sakulhongsophan, B.E.2540) and improve quality of care that their relative patients receive (Baker, 1993). A study of Jinnarat Srepatarapinyo (B.E.2540) tested the effect of teaching and skill training for caregivers of cerebovascular patients on caregivers' caring ability and patients' health status. The results of this study suggested that the teaching and skill training programs could improve caregivers' ability and provide effective caring for the patients. In addition, three studies used the Home-Based Intervention Program as intervention programs to promote functional recovery of patients who had hip fractures. They found that the Home-Based Intervention Program could promote optimal functional recovery of these patients (Sherrington & Lord, 1997; Tinetti, et al., 1997, 1999).

Therefore, in this quasi-experimental study, the researcher selected a nursing intervention based on the results from literature review about impact of caregiving, caregivers' responses, and needs of caregivers in caring for the dependent elders. Contents of the Home-Based Management Intervention Program (HMIP) consisted of four topics as follows: the nature of the elderly, the hip fracture and hip arthroplasty, the postoperative and home care for the patients, and caregivers' management of their time, responsibility, stress, and work life. The Roy Adaptation Model was used as a conceptual framework to study the adaptation level of caregivers of the elderly post-hip arthroplasty patients. This nursing intervention was developed to promote caregivers' adaptation by improving caregivers' knowledge and skill in providing care to the patients at home. Caregiver's abilities and skills in caring for the patients could led improve quality of care for the patients. Also, the quality of care that the patient received could be examined as indicators of patients' recovery and satisfaction with nursing care they have received.

Patient Satisfaction with Nursing Care

Other than mortality and morbidity, patient satisfaction as an outcome of health care delivery has been widely adopted as an indicator of quality of care (Greeneich, 1993: 65; Mahon, 1996: 1243). Quality of care as measured by patient satisfaction is most closely tied to patient satisfaction with the quality of nursing care because most health care is nursing care (Mahon, 1996: 1243). The study of Abramowitz and associates (1987 cited by Naylor, 1991: 213) reported that patient satisfaction with nursing care is a major determinant of satisfaction with hospital care. This is because the majority of services provided to hospital patients is nursing care. Nurses provide virtually all the direct care for which patients need to be hospitalized, and they have the major responsibility for integrating most other services in ways that serve the patient's needs (Oberst, 1984: 2368). In providing family-centered care for patients, the patients include both the elderly and the family caregiver (Bull, et al., 2000: 76).

Patients' satisfaction with nursing care is of considerable concern to professionals interested in monitoring care quality and studying the effectiveness of specific nursing intervention including a comparison group of patients receiving routine care (La Monica, et al., 1986: 43; Thomas & Bond, 1996: 747). At a conference sponsored by the National Center for Nursing Research, Hinshaw (1992 cited by Mahon, 1996: 1242) concluded that patient satisfaction is more appropriate for measuring the result of nursing interventions than the traditional outcomes such as mortality and morbidity. Therefore, patient satisfaction is one of the frequently reported outcome measures when new nursing interventions are tested (Munro, et al., 1994: 119). Furthermore, it is widely recognized that care cannot be of high quality unless the patient is satisfied (Vuori, 1987 cited by Williams, 1994: 510).

Risser (1975 cited by Mahon, 1996: 1244) was defined the concept of patient satisfaction with nursing care as an attitude that reflects the degree of congruency between patients' expectations of ideal nursing care and their perception of the real nursing care they have received. Pascoe (1983 cited by Erikson, 1995: 61) has defined patient satisfaction as a health care recipients' reaction to salient aspects of the context, process and result of their service experiences. Similarly, La Monica and colleagues (1986: 44) have defined client satisfaction with nursing care as the degree

of congruence between patients' expectation of nursing care and their perception of care actually received. In 1992, Greeneich and associates (cited by Greeneich, 1993: 64) developed a theoretic model of patient satisfaction specific to nursing and defined patient satisfaction with nursing care as results when there is a match between expected care and care actually received. From application of the Webster dictionary definition, in terms of the concept of patient satisfaction, Eriksen (1995: 61) has defined client satisfaction as a result of the patients' having their needs, desires, or wants regarding nursing care met. In summary, patient satisfaction with nursing care is the attitude or feeling of contentment that has been actually received. It occurs when the patients' expectations of nursing care are met by the nursing care they actually received.

Satisfaction with nursing care can be influenced by several factors, such as their sociodemographic characteristics, physical and psychosocial status, expectation, attitudes, as well as prior experiences with hospitals (Naylor, 1991: 213; Oberst, 1984: 2367; Williams, 1994: 512).

Sociodemographic characteristics refers to characteristics of patients such as age, gender, education and family income. As for age, older patients tend to report higher levels of satisfaction than do younger patients (Kruput, et al., 2000; Linn & Hays, 1982 cited by Greene, et al., 1994: 1279; Hall & Dornan, 1988; O' Leary, 1992; Vipa Durongpisitkul, B.E.2525; Zahr, et al., 1991). It could be explained by the fact that older patients have probably had previous experience with care during hospitalization and therefore are well aware of nursing care they have received. In terms of education, satisfaction with care tends to be lower in patients who have more education (Ferrans, et al., 1987; Hall & Dornan, 1990; Paudel, 1998; Smutraprapoot, P., 1997). A possible explanation for these findings is that expectations of care increase with education, and as expectations increase, it becomes more likely that they cannot be met. Thus, patients with low expectations may express little dissatisfaction, as expectations are fulfilled (Ferran, et al., 1987: 373; Oberst, 1984: 2367). About family income, the studies reported that those in the higher income group are significantly less satisfied than those in the lower income group (Piyawan Prakunkongchai, B.E.2533; Smutraprapoot, P., 1997; Vipa Durongpisikul, B.E.2525).

Clients who have high education seem to have high family income, and they may have high expectation for nursing care as well.

Patients' health status prior to receiving care may influence their level of satisfaction. Greenley and colleagues (1985 cited by Naylor, et al., 1991: 213) have noted that patients with poor psychological health might be less satisfied with care because they have difficulty getting relief from their distress. Similarly, the patients experiencing psychological distress in terms of problem such as anxiety were more likely to be generally dissatisfied with health care (Hopton, 1993 cited by Sitzia & Wood, 1997: 1836). Krupat and associates (2000) also found that patients with good health status were more satisfied with the care they received.

Expectation, perception, attitudes, and previous experience are also recognized as influencing patient satisfaction with nursing care. Past experience with hospital has also been found to influence patient satisfaction; prior satisfaction with care is related to current satisfaction (Zahr, et al., 1991: 338). Moreover, the patients' attitudes will influence their rating of satisfaction with health care. A positive attitude towards health care will therefore result in better satisfaction ratings (Elbeck, 1987 cited by Zahr, 1991: 338).

Donabedian, who gave the field of health care quality the classic tripartite framework of structure-process-outcome, noted that the patients' satisfaction with care provides the health care provider with information regarding success at meeting those values and expectations with which the patient is concerned (Donabedian, 1988: 1745, Eriksen, 1987: 34). Likewise, Oberst (1984: 2367) stated that patient judged to be satisfactory when their expectation about care outcomes, care provider behaviors, and system performance were met by the actual care they received. Therefore, patients' expectation with nursing care may be the key determinant of satisfaction with nursing care.

Grau (1984) found that what older adults expected from geriatric nurses included kindness, caring, politeness, trustworthiness, empathy, listening to what they wanted and responding appropriately, respect for their dignity and privacy, promptness, having appropriate competency in nursing knowledge and skills, wearing a uniform, and helping them to understand and cope with their limitations. Moreover,

patients want nurses to be kind, friendly, considerate, careful, open, genuine, honest, and courteous (Donabedian, 1988: 1744; Sheppard, 1993; Williams, 1997: 16).

Greeneich and assiciates (1992 cited by Greeneich, 1993: 65 – 66) developed a theoretic model of patient satisfaction specific to nursing in 1992. This model was based on multiple research studies, and it classified associated phenomena into one of the three tracts: the nurse (inherent personality characteristics, nursing care characteristics, and nursing proficiency), the patient (expectations), and the organizational environment (nursing milieu) which are described below:

Nurse tract: Inherent personality characteristics are those attributes and behaviors that the nurse brings to the job, as unique to each nurse. Social courtesy, acceptance, kindness, helpfulness, and empathy have been identified as essential to promoting client satisfaction. In addition, the nurse should be intelligent, capable, patienT and toleranT; handle emotional interactions; establish a trusting relationship; and offer personalized care (Erikson, 1995: 64). Nursing care characteristics are those professional characteristics that expedite meaningful client-nurse interactions. Explanation of nursing procedure, demonstrated concern, mutual goal setting, and the ability of the client to express feelings to the nurse contribute to positive client-nurse interactions. Research findings indicated that the patients' perception of quality of care was related to interpersonal relationships and suggested that personal interactions between care providers and patients significantly influenced patient satisfaction (Fosbinder, 1994: 1085). Nursing proficiency, organization skills, technical competency, and nursing knowledge comprise aspects of this dimension on which the patient judges nursing proficiency.

Patient tract: Patient expectation is the anticipation that an event will happen. Confirmation of patient expectations becomes the critical determinant in client satisfaction. Competency, equity of treatment, communication, and information are associated with complementary patient-provider relationships that result in patient satisfaction.

Environment tract: Nursing milieu consists of two different domains: the physical environment (such as noise, lighting, food service, and housekeeping) and the organizational environment (such as staffing, client policies, visiting hours) are encompassed in the nursing service. Luther (1996) found that the

inpatient units where patient satisfaction was highest shared three common factors: consistent leadership, fewer than 30 beds, and homogeneous client group.

Furthermore, patients are satisfied with nursing care when their needs, desires, or wants are met (Eriksen, 1995: 61). Laitinen (1992, 1993) reported that elderly patients need trust, privacy, autonomy, and psychological and emotional support from nurses, while their relative caregivers seek to increase their participation in patient care and need relevant information about the possibilities to take part in planning, decision making and evaluation of care. Moreover, characteristics of the nurse such as humanity, skills, empathy, and friendliness are mentioned (Laitinen & Isola, 1996: 944- 946). Nurses' activity to provide information for patients and their caregivers including answering questions, explaining care, and demonstrating techniques could promote patients' satisfaction (Risser, 1975 cited by Hinshaw & Atwood, 1982: 171).

To support what has been stated above, Young and associates (1980 cited by Ventura, et al., 1982: 227) found that the patients were more satisfied with response of the nursing staff to their pain and discomfort, amount of information given to them or how to care for themselves at home. Alexander and colleagues (1993) reported that patients were satisfied with the nursing care provider in respect to answering their questions, providing personalized care, maintaining their personal privacy and providing information in preparation for hospital discharge. Similarly, the results of the study of Fosbinder (1994) reported that patients expressed satisfaction with the nurse-patient interaction when nurses informed, explained, and instructed on specific aspects of treatment and taught general principles of care.

Therefore, knowing about patients' expectations and needs from nursing care will help nurses understand and recognize how to improve the nursing care so as to meet the needs of the clients. It is very useful for nurses to design effective intervention that enhances the patients' satisfaction. Based on the information needs, the adequacy of information given to patient in terms of both completeness and clarity in understandable language is essential for patient satisfaction. Some nurse researchers investigated the effect of specific information provided for the patients on their satisfaction. They found that patients who received adequate specific information rated their overall satisfaction higher than did the control group (Cleary &

McNeil, 1988 cited by Eriksen, 1995: 71; Krupat, et al., 2000; Lewis & Woodside, 1992).

On the other hand, patients and their relative caregivers in the experimental group participated or involved in their care in addition to the usual care received in the setting. Results of the studies indicated that patients and their caregivers in the experimental group had significantly higher satisfaction with nursing care and patients' recovery than those in the control group (Bull, et al., 2000; Chavalee Yamvong, B.E.2538; Orachon Malahom, B.E.2534; Pornchan Pongprom, B.E.2534; Rumprada Intorn, B.E.2539; Sumana Saenmanoch, B.E.2541; Tussanee Arnantapunpong, B.E.2538; Vinyanguag, P., 1992). Moreover, the nursing intervention as the educational program can enhance patients' satisfaction as well. The patients in the experimental group received the education program and psychological support in addition to routine care. They were more satisfied with nursing care than the patients who received routine care only (Thompson, et al., 1990; Wong & Wong, 1985).

In orthopedic nursing, a randomized controlled trial study by Wong & Wong (1985) investigated the effect of an individualized learning-activity package together with reminders and positive reinforcement behavioral strategies on patients undergoing total hip replacements. A significant difference was found between the experimental and controlled patients in the regularity, willingness, and accuracy with which they performed the prescribed postoperative exercises. The experimental patients were significantly more satisfied with this approach to preoperative teaching than the control patients. Similarly, Sumana Saenmanoch (B.E.2541) investigated the effect of promoting caregiver participation in caring for the elderly fractured hip patients. Subjects of both groups also received usual nursing care, but the subjects in the experimental group received an additional caregiver participation program from the investigator. The result of this study revealed that there were statistically significant differences between the experimental and control groups regarding patients' activity of daily living, caregivers' anxiety, and patients' and caregivers' satisfaction.

In a number of studies, patient satisfaction has been shown to influence patient adherence to therapeutic recommendation, and dissatisfied patients have been

found to change health services (Greene, et al., 1994: 1279; Naylor, et al., 1991: 213). Satisfied patients are important because satisfied customers are loyal and may be counted on for return business and referrals, leading to increased revenue, market share, profitability, and better clinical outcome (Greeneich, 1993: 62; Steiber & Krowinski, 1990 cited by Mahon, 1996: 1242).

As mentioned above, satisfaction with nursing care has been shown to be the most important aspect of overall satisfaction with hospital care. In addition, patients generally see nursing care as an important factor in their satisfaction with overall care and in their decision to return to the hospital (Williams, 1997: 17). Furthermore, if specific nursing intervention can be shown to have beneficial patient outcomes, nurses' claim for greater independence and professionalism will gain momentum.

Based on a review of literature, caring for an elder post hip arthroplasty at home requires considerable physical and psychological effort. The family caregivers had to help their relative patients with ambulation, ADLs, IADLs, mental and spiritual support, and economic support. The Roy Adaptation Model was used as a conceptual framework to study the adaptation level of caregivers of the elderly post hip arthroplasty. This nursing intervention was developed to promote caregivers' adaptation, and then nursing intervention can improve quality of care providing for elderly post-hiparthroplasty patients. Quality of care that the patient received could be assessed by patients' recovery and satisfaction with nursing care that they received.

CHAPTER III
MATERIALS AND METHODS

This research aimed to study the effects of a Home-Based Management Intervention Program for family caregivers of elderly patients undergoing hip arthroplasty on the elders' postoperative recovery and satisfaction.

Population and Sample

The population of this quasi-experimental study was the elderly patients with hip fracture who were scheduled for hip arthroplasty and family caregivers.

The inclusion criteria for selection of elderly patients were: 1) sixty years of age or older, with the scores of the Set Test more than or equal to 25, 2) diagnosis of femoral neck or intertrochanteric hip fracture of nonpathologic origin, and receiving first time hip arthroplasty, 3) length of postoperative-stay less than 15 days, and the scores of the Barthel Index less than 24 before discharge, and 4) living in Bangkok or suburban area. The patients who had been bedridden for more than one month before admission were excluded from the study. The inclusion criteria for the family caregivers were 1) eighteen years of age or older (If older than 60, must have scores of the Set Test more than or equal to 25, 2) primary caregivers who took care of their relative patients after discharge at home in Bangkok or suburban, and 3) visiting the patients at least once during hospitalization. Both of the patients and their family caregivers were able to communicate in the Thai language and had willingness to participate in this study.

The sample size was calculated based on power analysis (set $\alpha = .05$, power = .80). According to the result of meta-analysis (Hanucharurnkul, et al., 2001), the effect size of research related to the effect of teaching intervention for the surgery patients on the outcomes such as satisfaction and complications are .87 and .74, respectively. The sample size is 25 at effect size .80, and 32 at effect size .70 (Polit & Hungler, 1999: 492). Therefore, the sample size in this study should around 25-32 for

each group. The researcher considered using the 54 dyads as a sample size, so they were then divided into two groups: 27 dyads for each group. Data collection was started with the control group, and then proceeded with the experimental group. This design was selected to prevent the contamination of the intervention to the control group, which may cause feelings of unequal or unfair if a comparison with the experimental group.

Setting

Data were collected from two tertiary care hospitals in Bangkok, which had similar protocol of treatment of hip fractures and hiparthroplasty. The first one was a medical school university hospital, Ministry of University Affairs. Another was a general service hospital under the Ministry of Public Health. The general orthopedic wards of both hospitals consisted of 36 beds provided care for orthopedic patients, both male and female, aged 15 or older. Staff nurses worked eight-hour shifts: morning, afternoon, and night shifts. Orthopedic patients, pre and post operative, were monitored and cared for by staff nurses. There were three to four nurses in morning, and one to two nurses in the afternoon and night shifts. These two settings served as a training center for orthopedic specialists, medical students and nursing students. Visiting hours were from 11:00 a.m.- 08:00 p.m. from Monday to Friday, and 10:00 a.m. to 08:00 p.m. on weekends and holidays. Both hospitals have similar conventional nursing care. They also have discharge planing and/or home visit and/or telephone counseling. The patients and their family caregivers were given the routine information about postoperative care for the patient post hip arthroplasty. They also received the pamphlet, which was only two pages contained brief advised about ambulation and prevention of postoperative complications for post-hip arthroplasty patients.

Instruments

There were two types of instrument used in the study: the intervention program and instruments for data collection.

1. Home-Based Management Intervention Program (HMIP) (Appendix A) The HMIP for family caregivers of elderly patients undergoing hip

arthroplasty was developed based on the results from literature review about impact of caregiving and caregivers' responses and needs in caring for dependent elders. When designing programs to educate, support, and train caregivers, it is important to consider the goals of the programs and particular kind of specialized information, knowledge and support to be provided to the caregivers. Two main purposes of the HMIP were 1) to provide knowledge and develop skills of caregiver in order to provide quality of care to the elderly with hip arthroplasty at home, and 2) to promote caregiver adaptation to the caregiving role. From the literature review, there are varieties of methods to educate and train family caregivers including: 1) single session community workshops and educational forums, 2) lecture series followed by discussion, 3) support groups, 4) psycho-educational and skills building groups, 5) individual counseling and training, 6) family counseling, 7) care coordination and management, and 8) technology-based interventions. The empirical literature does not provide definitive guidance about what method is most efficacious but suggests that multi-component programs may be more effective than single component programs. There is also some evidence that individual training programs may be more effective than group programs in helping caregivers with emotional problems, but that group training may be more effective in building social support and overcoming isolation.

In this study, the researcher chose individual counseling and training to provide the HMIP because it is more suitable than the other methods during the transition period from hospital to home care. Support group for the caregiver might not work because the limitation of the number of participation on time in the support group. The HMIP activities are composed of teaching contents and training of principle skills, home visit, and telephone counseling.

Based on the literature review related to caregiving demands of the elderly with hip fracture post hip arthroplasty, impact of caregiving and caregiver adaptation, the contents of the teaching consisted of 1) the nature of the elderly, 2) the hip fracture and hip arthroplasty, 3) the postoperative and home care for the patients, and 4) caregiver management of their time, responsibility, stress and work life. These contents were verified by four experts: one arthoplasty surgeon, one orthopedic nurse instructor, one elderly nursing instructor, and one orthopedic staff nurse.

Four parts of the content were organized and arranged in the form of guidelines, flipcharts, and booklets.

1.1 Instruction guidelines. The instruction guidelines were used for teaching contents that would ensure the same content for all the subjects.

1.2 Instruction flip charts. The chart provides a simple visual reinforcement for teaching contents. Contents of the instruction flip charts were the same as the content in the instruction booklets.

1.3 Instruction Booklets. Four instruction booklets consisted of four main topic contents: the nature of the elderly, the hip fracture and hip arthroplasty, the postoperative and home care for the patients, and caregiver management of their time, responsibility, stress, and work life. The booklets were distributed to family caregivers after teaching and training session for review and practice when they needed to clarify were more details at home. The language and pictures in the instruction booklets are simplified for the caregiver to use and review with case.

2. Instruments for data collection

2.1 Demographic Questionnaire (Appendix B) was developed by the researcher particularly for this study to describe the characteristics of the elderly patients and their caregivers. It included a) information about the patients' age, sex, marital status, religion, education level, occupation, family income, type of medication payment, number of children, health problem, history of fall, and medication; b) information about caregivers' age, sex, marital status, religion, education level, occupation, family income, and health problem. These data were obtained from interviews and medical records; and c) information about the patients' type of hip fractures, type of surgery, type of surgical approach, treatment, length of postoperative hospitals stay, home medication, and date of follow ups.

2.2 The Set Test (Appendix C) was developed by Isaacs & Akhtar (1972). It was a quantitative, verbal method to screen mental status in older adults. This test was performed by asking the elderly to name as many items as they could recall in each of the four categories or sets: fruits, animals, colors, and towns (cities). One point was assigned for each correct item. No points were given or deducted if the items were repeated. The researcher told the patients so if they repeated the items.

There was no time limit. The maximum score that could be achieved in each category was 10; the maximum total score was 40. Isaacs and Kennie (1973: 468) recommended that the elderly who scored equal to or more than 25 were mentally normal and had no dementia.

Validity and reliability testing

Isaacs and Kennie (1973: 467-470) used this test in studying 189 persons, aged 65 and older, in the East End of Glasgow. A total score under 15 corresponded closely to a clinical diagnosis of dementia. Scores between 15 and 24 reflected less similarity to dementia, while no subject with score of 25 or higher was found to be demented. Furthermore, Hays (1984: 96-97) used the Set Test in more than 100 older adults and found it to be extremely helpful. The Set Test could be a good tool for screening mental status in older adults in community and institutional care. Performance on the test was consistent. The high scorers did well in every category, whereas the low scorers did poorly in all. Therefore, the Set Test was a practical, sensitive, reliable, and applicable mental status test because of the question regarding ordinary living and it could be performed rapidly and fairly easily. In Thailand, Arunee Nakaphongse (B.E.2539: 41-42) and Sumana Saenmanoch (B.E.2541: 42-43) used the test to evaluate the mental status of the subjects and they found that administration time was two to three minutes and it took no more than five minutes. In the present study the elderly patients took two to 17 minutes and the elderly caregivers took two to four minutes, to complete the Set Test. The category of cities or towns caused recall difficulties for the elders who rarely went outside their home, similar to the study of Lausawatchaikul, P. (1999).

In this study, the researcher used the Set Test in screening the patients' and elderly caregivers' mental status because it had minimal bearing on educational status, social status, culture, and norms. The subjects who had scores of the Set Test less than 25 were excluded. Because of the physical ability to perform such tasks as dressing, satisfactory functional status requires cognitive abilities such as sequencing, sorting, selection, and judgment. Cognitive performance may be seen as a marker for overall functional vulnerability (Brown, 1988: 15). The studies reported that patients with decreased mental status were less likely to achieve independence in ambulation and ADLs and low mental status in hospital was found to increase the

chances of mortality and institutionalization. In additional, the caregivers who had mental impairment had limited capacity to respond to the demands of caregiving and ability to perform ADLs and IADLs (Brown, 1988: 14; Bull, 1990: 761; Cree, et al., 2000: 283; Cummings, et al., 1988: 801; Goldstein, et al., 1997: 35; Lim, et al., 1996: 261; Naylor, 1991: 213).

2.3 The postoperative recovery form was developed by the researcher to evaluate the patients' recovery from surgery. The content of the inventory included:

2.3.1 The Barthel Index (BI) (Appendix D) was developed by Mahoney & Barthel (1965). It was used for measuring the patient's functional status. The question of the BI covered feeding oneself, transferring, moving (walking), dressing, bathing, grooming (brushing teeth, combing hair, shaving, and make up), toilet use, climbing stairs, and bowel and bladder control, which were the basic ADLs. The values assigned to each item in the BI are based on the amount of physical assistance required to perform the task. The score of each item was not equal depending on its importance for living. Scoring was based on performance either by report (and/or interviewing caregiver) or observation. The total scores ranged from 0-100. A total BI score of 0-20 suggested total dependence, 21-60 severe dependence, 61-90 moderate dependence, and 91-99 slight dependence. A score of 100 indicated that the patient was independent of assistance from others.

Validity and reliability testing

The BI was an empirically derived scale with proven inter observer and test-retest reliability and validity which measured the patient's functional ability without family social functioning distorting the outcome (Shah, et al., 1989: 703-704). The BI was found to be reliable and repeatable in skilled and unskilled hands. The Kendall's coefficient of concordance W was highly significant ($p < .001$) between all four raters with overall reliability of .93 showing a high degree of agreement (Granger, et al., 1979 & Collin, et al., 1987 cited by Shah, et al. 1989: 704).

Chavalee Yamvong (B.E.2538) translated the BI into Thai and modified its scoring. She modified the scoring of the original BI by using 2.5 to divide the total score of each item; therefore, the total scores ranged from 0 to 40. The score of each item was as follows:

1. The activities of bathing and grooming (brushing teeth, combing hair, shaving, and make up) were scored on three levels (0 = independent, 1 = required less assistance, and 2 = completely dependent).

2. The activities of transferring and moving (walking) were scored on four levels (0 = independent, 2 = required more assistance, 4 = required less assistance, and 6 = completely dependent).

3. The activities of feeding oneself, dressing, toilet use, climbing stairs, and bowel and bladder control were scored on three levels (0 = independent, 2 = required some assistance, and 4 = completely dependent).

4. The activities of bowel and bladder control were scored on three levels (0 = completely incontinence, 2 = mostly continence, and 4 = completely continence)

High scores in each item reflected high level of ability to perform the activity. After being validated by five experts, it was used to measure the function status in ten elderly patients of her pilot study and 60 elderly patients in her main study. Conbach's alpha coefficients of reliability were .91 and .93, respectively. In pilot study (n=10), the interrater reliability between the researcher and the assistant was .97 (Chavalee Yamvong, B.E.2538: 31). Suwanee Mahakayanun (B.E.2538) used this modified Thai version BI to study 60 elderly patients, and Sumana Saenmanoch (B.E.2541) used it with 40 elderly patients. They found that the Conbach's alpha coefficients of reliability were .93 and .95, respectively. In this study, it was applied with 5 subjects in a pilot study, and the interrater reliability was 1.0. Then after use in the main study (n=54), the reliability of Cronbach's alpha coefficient was .86.

As hip fractures have a bigger impact on physical functioning than mental health, ambulatory status and the ability to perform various ADLs are commonly used to describe the level of physical ability post-fracture (Craik, 1994: 388; Koval, et al., 1995: 150; Shepherd & Prescott, 1996: 341). In this study, the researcher used the BI, which was translated into Thai with the modified scoring by Chavalee Yamvong (B.E.2538), to measure the patient's functional status and the caregiving demands from the patient's disabilities or dependence on basic skills necessary for independent living at 24 hours before patient discharge. The patients

who had total scores less than 24 were included in this study, because the total scores less than 24 indicated the patient's dependency and need of caring from others (Jitapunkul, S., et al., 1994: 232; Shah, et al., 1989: 704; Shepherd & Prescott, 1996: 338; Sutthichai Jitapunkul, B.E.2542: 54).

2.3.2 The Pain Visual Analog scale (PVAS) (McCaffery & Pasero, 1999: 62) (Appendix E) was used to assess the severity of pain sensation at the operated hip during movement or activities. This scale constituted a 10-cm straight horizontal line with anchor words positioned equidistant over the line, with zero indicating "no pain" on the left and ten indicating "pain as bad as it could be" on the right. The subjects were asked to place a mark on the line at a point representing the severity of their surgical hip pain during movement. The pain intensity score was determined by measuring in millimeters the distance from the left side of the line "no pain" to the place on the line marked by the subjects. The pain scores ranged from 0 to 100, with high scores reflecting high level of intensity of pain.

The PVAS obviously required the cooperation and understanding of the patients, and was therefore of limited use with confused, non-verbal elderly patients (Hayes, 1995: 1200). However, the visual analog scale was the instrument that was preferred to measure pain intensity in the elderly. For instance, Nelson and colleagues (1990: 79-83) used the visual analog scale in studying surgical hip pain of 14 elderly patients, aged 65 and older in five days postoperatively. They suggested that the visual analog scale was a quick, easy tool to accurately measure pain intensity of elders with adequate vision to use. Moreover, Ross and Crook (1998: 1117-1126) used the visual analog scale, to investigate the prevalence and experience of pain among the elderly who were not cognitively impaired and who were recipients of home nursing services. They reported that all subjects could complete the VAS. Furthermore, in the study of Flahaerty (2001: 236), that compared simple pain intensity measures by using both the visual analog scale and faces scale, it was shown that 86% of nursing home residents could complete at least one of these pain scales. It was also demonstrated high reliability and validity using the visual analog scale and faces scale with the elderly patients. Therefore, the researcher used the PVAS to assess the severity of their surgical hip pain during movement. In this study, the elderly patients had to have the score of the Set Test more than or equal to 25 to

indicate that they were not cognitively impaired and then they could report their pain by using the PVAS.

2.3.3 Postoperative complications form (Appendix F)

Postoperative complications accounted for in this study were surgical site infection, pneumonia, urinary tract infection, pressure ulcer, muscle atrophy, joint stiffness, hip dislocation, and loosening.

The criteria for evaluating infections (e.g. surgical site infection, pneumonia, and urinary tract infection) in this study followed the criteria suggested by the Infections Control Unit of two tertiary care hospitals, which was adapted from Centers for Disease Control (C.D.C.) definitions of infections (Garner, et al., 1988: 129-132; Horan, et al., 1992: 272).

Surgical site infections meant superficial incisional surgical site infection that must meet the following criteria:

Infection occured within 30 days after the operative procedure and involved only skin and subcutaneous tissue of the incision, and the patient had at least one of the following:

a) purulent drainage from the superficial or deep incision

b) organisms isolated from an aseptically obtained culture of fluid or tissue from the incision

c) at least one of the following signs or symptoms of infection: pain, tenderness, localized swelling, redness, or heat, and incision was deliberately opened by surgeon, unless incision was culture-negative

d) diagnosis of incisional surgical site infection by surgeon or attending physician.

Pneumonia was characterized by at least one of the following criteria:

Criteria 1: Patient had rales or dullness to percussion on physical examination of the chest and at least one of the following:

a) new onset of purulent sputum or character of sputum

b) organisms cultured from blood

c) isolation of an etiologic agent from a specimen obtained by transtrachial aspirate, bronchial brushing, or biopsy.

Criteria 2: Patient had a chest radiographic examination showing new or progressive infiltrate, consolidation, cavitation, or pleural effusion and at least one of the following:

a) new onset of purulent sputum or change in character of sputum

b) organisms cultured from blood

c) isolation of and etiologic agent from a specimen obtained by transtrachial aspirate, bronchial brushing, or biopsy

d) isolation of virus or detection of viral antigen in respiratory secretion

e) diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen

f) histopathologic evidence of pneumonia.

Urinary tract infection meant symptomatic urinary tract infection that must meet at least one of the following criteria:

Criteria 1: Patient had at least one of the following signs or symptoms with no other recognized cause: fever (>38° C), urgency, frequency, dysuria, or suprapubic tenderness and had a positive urine culture, that is, $\geq 10^5$ microorganisms per cm^3 of urine with no more than two species of microorganisms.

Criteria 2: Patient had at least two of the following signs or symptoms with no other recognized cause: fever (>38° C), urgency, frequency, dysuria, or suprapubic tenderness and at least one of the following:

a) positive dipstick for leukocyte esterase and/or nitrate

b) pyuria (urine specimen with $\geq$ 10 wbc/mm^3 or $\geq$ 3 wbc/high power field of unspun urine)

c) organisms seen on Gram strain of unspun urine

d) at least two urine cultures with repeated isolation of the same uropathogen with $\geq 10^2$ colonies/ml in nonvioded specimens

e) $\leq 10^5$ colonies/ml of a single uropathogen in a patient being treated with an effective antimicrobial agent for a urinary tract infection

f) physician diagnosis of a urinary tract infection

g) physician institutes appropriate therapy for a urinary tract infection.

Pressure ulcers were graded or staged to classify the degree of tissue damage observed. The staging of pressure ulcers recommended for used by this study was consistent with the recommendations of the National Pressure Ulcer Advisory Panel (UPUAP, 1989 Consensus Conference) (Bergstrom, et al., 1994: 12-13). The staging was as follows:

Stage I: Nonblanchable erythema of intact skin; the heralding lesion of skin ulceration.

Stage II: Partial thickness skin loss involving epidermis and/or dermis. The ulcer was superficial and presented clinically as an abrasion, blister, or shallow crater.

Stage III: Full thickness skin loss involving damage or necrosis of subcutaneous tissue that may extend down to, but not through, underlying fascia. The ulcer presented clinically as a deep crater with or without undermining of agent tissue.

Stage IV: Full thickness skin loss with extensive destruction, tissue necrosis or damage to muscle, bone, or supporting structures (for example, tendon or joint capsule).

Muscle atrophy was detected by measuring thigh circumference. The muscle group investigated was quadriceps femoris muscle. In this study, the measurement point was 5 cm (2 inches) above the base of the patella and measures the circumference of both thighs by the tape measure in supine position (Magee, Ed., 1997: 572). The reliability of the tape measure was calibrated from the Ministry of Commerce. The circumference of each thigh was compared in two weeks and six weeks after the operation. Decreased muscle size greater than 1 cm indicated muscle atrophy (Smeltzer & Bare, Eds., 2000: 1774).

Joint Stiffness was detected by measuring range of motion of knee. The goniometer, which was recommended for reliability by Zimmer, U.S.A., was used as a means of measurement. It assessed both flexion and extension in the sagittal plane, with the patient supine. In general, full knee extension that was approximately 0° but may be -15° was usually preferable for everyday activities (e.g.,

standing, walking). Full knee flexion (135°) was not necessary to perform the activities of daily living. However, sitting in a chair requires approximately 90° of flexion (Magee, Ed., 1997: 523). Therefore, knee flexion lesser than 90° and knee extension greater than 0° indicated knee joint stiffness in this study.

Prosthetic joint dislocation. A radiographic evaluation was done at six weeks postoperatively in order to detect the evidence of prosthesis dislocation and loosening. This diagnosis was investigated by the surgeons.

2.4 The Patients' Satisfaction Questionnaire (Appendix G). Patients' satisfaction was measured by using Monro's patient satisfaction that was developed by La Monica, et al. (La Monica-Oberst Patient Satisfaction Scale; LOPSS) in 1986 and revised by Monro, et al. (1994). It contained 28 items: half were positive-score items and the other half were negative-score items. The score of negative items were reversed. Each item was rated on a 5-point Likert scale (5, 4, 3, 2, and 1) from strongly disagree to strongly agree, with scores ranging from 28 to 140. High scores reflected high level of satisfaction.

Validity and reliability testing

Munro, et al. (1994) used the revised LOPSS in women with unplanned cesarean birth (n = 120), childbearing diabetics (n = 78), and women post-nononcologic hysterectomy surgery (n = 109) and found that the Cronbach's alpha coefficient was .97.

In this study, the researcher used the revised LOPSS, which was translated into Thai and modified to measure patients' satisfaction by Chavalee Yamvong (B.E.2538). After being validated by five experts, it was used in measuring the patient's satisfaction in twelve elderly patients of her pilot study and 60 elderly patients in her main study. Cronbach's alpha coefficients of reliability were .83 and .89, respectively. Sumana Saenmanoch (B.E.2541) used it with 40 elderly patients and found that the Cronbach's alpha coefficients were .92. In the present study, the Cronbach's alpha coefficients of reliability were .95 in the main study (n=54).

Protection of Human Subjects

This study was conducted based on the protection of human rights. Eligible subjects were approached and asked to participate in the study. The researcher explained the purpose of the study; the research process; benefits; length of time required for teaching, visiting, and completing the questionnaire, and right to refuse to participate in the study. The subjects who agree to participate were informed and assured that data would be kept confidential and reported only as group data. In addition, participants were informed that they could withdraw from the study at any time (Appendix H).

Preparation for Research Assistant

The researcher had one research assistant who was a registered nurse and had experiences in orthopedic nursing for more than two years. The assistant was trained to be able to provide the intervention based on HMIP and collect data using all instruments. The researcher and the assistant provided intervention and measured the outcome, case by case alternatively. This meant that when the researcher provided the intervention, the assistant measured the outcomes. On the other hand, if the assistant gave the intervention, the researcher measured the outcomes. Moreover, in order to assure that the intervention provided to all subjects in the experimental group by both the researcher and the assistant was accurate and consistent, the researcher and the assistant developed a protocol, a flip chart, and a nursing protocol for hip arthroplasty and adaptation of caregiving. The researcher and the assistant used the protocol, flip chart, and nursing protocol as a guidance in practicing teaching techniques, such as how to ask questions, and what action and sound to use during teaching. The practice of teaching was videotaped, and then commented by two nursing instructors to assure that the styles and techniques of teaching were similar. Moreover, the inter-rater reliability for Barthel Index between the researcher and the research assistant was conducted with five hip arthroplasty patients was 1.0.

Data collection Procedure

Permission to conduct the study was obtained from the institutional review board of the two tertiary care settings. After approval by the Faculty of Graduate Studies, the recommendation letter asking for permission was submitted to request co-operating in collecting data. The subjects who met the criteria were approached. The researcher provided information regarding the study to the prospective sample and asked for their consent to participate in the study. In order to prevent the problem of contamination between subjects in the control and the experimental groups, the researcher conducted the study with the control group separately from the experimental group. The first 27 dyads (27 patients and 27 of their caregivers) who volunteered to participate in the study were assigned to the control group, and the later 27 subjects (27 patients and 27 of their caregivers) were assigned to the experimental group.

The control group received the conventional care provided by staff nurses. It included making an appointment with the physician for follow-ups patient's condition at OPD, giving instruction, and offering suggestions on postoperative practice. The patients and their caregivers in the control group were visited by the researcher or the research assistant in order to develop acquaintance and to make an appointment for interviews in the second and sixth weeks after the operation. The family caregivers in the experimental group were taught based on the HMIP by the researcher or the research assistant at least one time during hospitalization and three times postdischarge (at least two times at their home). At the second week after operation, if some patients had appointment to see the physicians so that, the family caregivers were taught the second teaching and interviewed at Out Patient Department (OPD). Furthermore, the family caregivers were informed that if they had any problems in caring the patient at home, they could call to the researcher or the assistant. In addition, the topic about the postoperative and home care for caring the patients post-hip arthroplasty at home were informed and trained for family caregivers as well as their relative patients. The researcher or the assistant demonstrated them how to perform the exercises and/or activities, after that they remonstrated until had confident and correctly. The patients were assessed, and interviewed by using questionnaires at

the second and the sixth week after operation. The planned activities for the control and the experimental groups are described in Table 1.

Control group	Experimental group
➢ **Hospitalized phase** 1. Patients with functional ability score (ADLs) less than 24 and their caregivers received the conventional care provided by staff nurses. 2. The patients were evaluated for pain and complications before discharge.	➢ **Hospitalized intervention phase** 1. Patients with functional ability score (ADLs) less than 24 and their caregivers were taught by the researcher or the assistant based on the Home-based Management Intervention Program (HMIP). 2. The patients were evaluated for surgical hip pain and complications before discharge.
➢ **Home-based phase** OPD visit at the 2nd week after patients' operation ▪ The patients were evaluated for surgical hip pain, complication, and functional ability (ADLs).	➢ **Home-based intervention phase** OPD or Home visit at the 2nd week after patients' operation 1. The patients were evaluated for surgical hip pain, postoperative complications, and functional ability (ADLs). 2. Caregivers were taught by the researcher or the assistant based on the HMIP.
Conventional nursing care	Home visit at the 3rd - 4th weeks after patients' operation ▪ Caregivers were taught by the researcher or the assistant based on the HMIP.
Conventional nursing care	Home visit at the 4th - 5th weeks after patients' operation ▪ Caregivers were taught by the researcher or the assistant based on the HMIP.
OPD visit at the 6th week after patients' operation ▪ The patients were evaluated for surgical hip pain, postoperative complications, functional ability (ADLs), and satisfaction.	OPD visit at the 6th week after patients' operation ▪ The patients were evaluated for surgical hip pain, postoperative complications, functional ability (ADLs), and satisfaction.

Table 1 Planned activities for the subjects

Data Analysis

Data were analyzed by using the computer package for Windows Program:

1. Percentage was used to describe the patients' demographics characteristics. Chi-square and Fisher's exact probability test were used to analyze if there was a difference in gender, marital status, educational level, occupation, personal income, health status, type of hip fracture, type of surgery, and surgical approach between the control and the experimental groups. Range, mean, and standard deviation was used to describe age, number of living children, length of postoperative stay, scores of the Set Test, and scores of ADLs before admission. Independent t-test was used to compare these variables between the two groups.

2. Percentage was used to describe the caregivers' demographics characteristics. Chi-square test was used to determine if there was a difference in gender, marital status, educational level, occupation, personal income, family income, chronic health problem, and personal aid. Range, mean, and standard deviation were used to describe age between the control and the experimental groups.

3. Analysis of covariance was used to analyze the differences of the mean scores of the ADLs between the control group and the experimental group, with controlled ADLs score at predischarge as a covariate, and at two and six weeks after the operation.

4. Analysis of covariance was used to analyze the differences in the mean scores of surgical hip pain between the control group and the experimental group, with controlled surgical hip pain at predischarge as a covariate, and at two and six weeks after the operation.

5. Chi-square was used to analyze the group difference regarding the numbers of postoperative complications.

6. Independent t-test was used to analyze the group differences of the patients' satisfaction scores.

CHAPTER IV
RESULTS

This quasi-experimental research was conducted to determine the effects of a Home-Based Management Intervention Program for the family caregivers of elderly patients undergoing hip arthroplasty on patients' recovery and satisfaction. Findings of this study are presented in two parts as follows: Part 1: the descriptive characteristic data of the study samples and Part 2: the results of hypothesis testing.

Part 1: The Descriptive Characteristic Data

The sample of the study consisted of family caregivers and their relative patients who had fractured a hip and undergone hip arthroplasty. The subjects were obtained from two tertiary care hospitals in Bangkok, Thailand. The data were collected from February 2002 to January 2003. In the control group, 28 dyads (the family caregivers and their relative patients) were approached. One of them died during hospitalization, but before participation in the study. In the experimental group, 27 dyads were approached, and all of them volunteered to participate in this study. Therefore, in this study, the sample included 54 dyads; family caregivers and their relative elderly patients who had fractured a hip and were undergoing hip arthroplasty. They were divided into two groups: the control and experimental groups (27 dyads in each group).

1.1 Patient demographic characteristics

Characteristics of the patients in both groups are presented in Table 2 and Table 3. Both of the control and the experimental groups were more female than male. The mean age of the patients was 75.00 (SD = 7.67; range = 60-87) and 76.63 (SD = 10.65; range = 60-98), respectively. All of the subjects in the control group (100%) and most of the experimental group (96.30%) were Buddhists. More than half of the subjects in the control group were married (55.56%), while the experimental group were single, widowed, divorced, or separated (59.26%). As for the educational

level, 37.04% of the control group, had no formal education and an equal number had primary education, whileclose to half (48.15%) in the experimental group finished primary school. Most of the subjects in both groups were unemployed or retired, accounting for 85.19% and 92.59%, respectively, with their average personal income equal to or more than 5,000 baht/month in the control group and less than 5,000 baht/month in the experimental group. The major means of medical payment in both groups was government reimbursement, or 55.56% and 51.85% respectively. The majority of the subjects in both groups had visual impairment (66.67% and 81.48%) and chewing problem (74.07% and 88.89%), but only one-third had hearing impairment (33.33% and 33.33%). Nineteen patients (70.37%) in the control group and 20 (74.07%) in the experimental group had never fallen or had experienced just one fall in the past year. Around 56% of the patients in the control group reported that they had two or more underlying diseases, while 63% in the experimental group had no and one underlying disease. The majority of diagnosis in both groups was fracture neck of femur and received hemiarthroplasty with anterior approach. Almost all of hip fracture in both groups resulted from a fall (94.44%). Chi-square test and Fisher's exact probability test, as shown in Table 2, revealed that there was no statistical difference ($p > .05$) between those characteristics of the control and the experimental groups.

Table 2 Chi-square test and Fisher's exact probability test of the patient demographic characteristics between the control and the experimental groups

Characteristics	Control group (n=27)		Experimental group (n=27)		p
	n	%	n	%	
Gender [b]					
Male	5	18.52	4	14.81	1.00
Female	22	81.48	23	85.19	
Marital Status [a]					
Single/ Widowed/ Divorced/ Separated	12	44.44	16	59.26	.41
Married	15	55.56	11	40.74	
Educational level [a]					
No formal education	10	37.04	11	40.74	.36
Primary school	10	37.74	13	48.15	
Secondary school / Higher	7	25.93	3	11.11	
Occupation [b]					
Unemployed / Retired	23	85.19	25	92.59	.38
Employed	4	14.81	2	7.41	
Income (Baht / month) [a]					
Less than 5,000	12	44.44	16	59.26	.41
Equal to more than 5,000	15	55.56	11	40.74	
Visual impairment [a]					
No	9	33.33	5	18.52	.35
Yes	18	66.67	22	81.48	
Hearing impairment [a]					
No	18	66.67	18	66.67	1.00
Yes	9	33.33	9	33.33	
Chewing problem [a]					
No	7	25.93	3	11.11	.29
Yes	20	74.07	24	88.89	

Table 2 Chi-square test and Fisher's exact probability test of the patient demographic characteristics between the control and the experimental groups (continued)

Characteristics	Control group (n=27)		Experimental group (n=27)		p
	n	%	n	%	
Underlying disease [a]					
No or one	12	44.44	17	62.96	.28
Two or more	15	55.56	10	37.04	
Number of falls [a]					
Never or one time	19	70.37	20	74.07	1.00
Two times or more	8	29.63	7	25.93	
Type of hip fractures [a]					
Intertrochanteric fractures	9	33.33	8	29.63	1.00
Fractures neck of femur	18	66.67	19	70.37	
Type of surgery [a]					
Hemiarthroplasty	26	96.30	26	96.30	1.00
Total hip arthroplasty	1	3.70	1	3.70	
Surgical approach [a]					
Anterior	20	74.07	20	74.07	1.00
Posterior	7	25.93	7	25.93	

a = Chi-square test, b = Fisher's exact probability test

The mean number of living children in the control group and the experimental group were 3.44 (SD = 2.68) and 4.30 (SD = 3.00), respectively. The mean length of postoperative stay (LOS) of the two groups were 8.19 (SD=3.37) and 8.22 (SD=3.50) days, respectively. The subjects in both groups were cognitively intacted; the mean scores of the Set Test were 31.37 (SD=5.00) in the control group and 31.26 (SD=5.32) in experimental group. The mean scores of ADLs before admission were 36.07 (SD=5.20) for the control group and 35.70 for the experimental group (SD=5.56). The independent t-test was used for a comparison of these variables

between the control and the experimental group. The results as presented in Table 3 revealed that both groups were not significantly different (p> .05).

Table 3 Independent t-test of the patients' demographic characteristics between the control and the experimental groups

Variables	Control group (n=27)			Experimental group (n=27)			t
	Range	Mean	SD	Range	Mean	SD	
Age (years)	60-87	75.00	7.67	60-98	76.63	10.65	-.645^{ns}
Number of living children	0-9	3.44	2.68	0-10	4.30	3.00	-1.101^{ns}
LOS (days)	3-14	8.19	3.37	4-14	8.22	3.50	-.040^{ns}
Set Test Scores	25-40	31.37	5.00	25-40	31.26	5.32	.079^{ns}
ADLs scores	19-40	36.07	5.20	24-40	35.70	5.56	.253^{ns}

ns = not significant (p> .05)

1.2 Caregivers' demographic characteristics

The mean age of family caregivers were 44.37 years (SD = 14.73; range = 20-80) for the control group and 47.11 years (SD = 14.60, range = 19-78) for the experimental group. The majority of family caregivers in the control and experimental groups were female (66.67% and 88.89%) and adult children (51.85% and 66.67%). The majority of caregivers in the control group was single/widowed/ divorced or separated, while those in the experimental group were married. All of the family caregivers in the control group (100%) and most the experimental group (96.30%) were Buddhists. The educational level was diploma or higher (44.44% in the control group and 51.85% in the experimental group). Around 63% of caregivers in both groups were employed, and 41% had income less than 5,000 baht/month. Most of the family caregivers in both groups had family income more than 20,000 baht/month. The majority of family caregivers in both groups reported they had no chronic health problem at the time of data collection. Finally, more than half of the family caregivers in the control group (51.85%) reported having personal assistance to help provide care

to for the elderly patients, whereas the family caregivers in the experimental group (55.56%) reported they did not have any.

Independent t-test and chi-square test were used to test the differences of caregivers demographic characteristics between the control and the experimental groups. The results, as presented in Table 4 and Table 5, revealed that there were no statistically significant differences between the two groups ($p > .05$). In summary, the characteristics of the control and experimental groups were similar.

Table 4 Independent t-test of the caregivers' age between the control and the experimental groups

Age of caregivers (years)	n	Range	Mean	SD	t
Control group	27	20-80	44.37	14.73	$-.687^{ns}$
Experimental group	27	19-78	47.11	14.60	

ns = not significant ($p > .05$)

Table 5 Chi-square test of the caregivers' demographic characteristics between the control and the experimental groups

Characteristics	Control group (n=27)		Experimental group (n=27)		p
	n	%	n	%	
Gender					
Male	9	33.33	3	11.11	.10
Female	18	66.67	24	88.89	
Marital Status					
Single/ Widowed/ Divorced/ Separated	14	51.85	11	40.74	.59
Married	13	48.15	16	59.26	

Table 5 Chi-square test of the caregiver demographics between the control and the experimental groups (continued)

Characteristics	Control group (n=27)		Experimental group (n=27)		p
	n	%	n	%	
Educational level					
Primary school	8	29.63	7	25.93	.86
Secondary / High school	7	25.93	6	22.22	
Diploma / Higher	12	44.44	14	51.85	
Occupation					
Unemployed / Retired	10	37.04	10	37.04	1.00
Employed	17	62.96	17	62.96	
Income (Baht / month)					
Equal or less than 5,000	11	40.74	11	40.74	.54
5,001 – 10,000	4	14.81	7	25.93	
More than 10,000	12	44.44	9	33.33	
Family income (Baht /month)					
Equal or than 20,000	10	37.04	12	44.44	.78
More than 20,000	17	62.92	15	55.56	
Chronic health problem					
No	20	74.07	22	81.48	.74
Yes	7	25.93	5	18.52	
Helper					
No	13	48.15	15	55.56	.79
Yes	14	51.85	12	44.44	

Part 2: Results of Hypotheses Testing

Hypothesis 1 stated that at the second and the sixth week after operation, the mean scores of the ADLs of the patients in the experimental group is higher than that of the control group.

As presented in Table 6, the results showed that the mean scores of the ADLs of the patients at predischarge were 15.78 and 16.22 in the control and the

experimental group, respectively. It was increased to 21.63 and 26.48 in the control group, and 26.04 and 31.89 in the experimental group at the second and the sixth weeks after the operation, respectively.

Table 6 The number, range, mean, and standard deviation (SD) of the ADLs scores of the control group and the experimental group at predischarge, the second week, and the sixth week after the operation

Time	The ADLs Score					
	Control group (n=27)			Experimental group (n=27)		
	Range	Mean	SD	Range	Mean	SD
Predischarge	3-23	15.78	5.48	8-23	16.22	4.79
2nd week after operation	6-31	21.63	7.03	18-36	26.04	5.36
6th week after operation	2-40	26.48	9.68	23-40	31.89	5.07

When testing for the influence of the ADLs score at predischarge on the ADLs score at the second week after the operation, the regression analysis showed statistical significance ($F=47.50$, $p< .001$). Thus, it led to a comparison of the mean scores of the ADLs at the second week after the operation between the control group and the experimental group by analysis of covariance (ANCOVA) done by adjusting the ADLs scores at predischarge as the covariate. The results as presented in Table 7 revealed that there was a statistically significant difference between the two groups ($F=10.63$, $p< .01$). In the same way, when testing for the influence of the ADLs scores at predischarge on the ADLs scores at the sixth week after the operation, the regression analysis showed statistical significance ($F=26.78$, $p< .001$). Thus, it led to a comparison of the mean scores of the ADLs at the sixth week after the operation between the control group and the experimental group by analysis of covariance (ANCOVA) done by adjusting the ADLs scores at predischarge as the covariate. As illustrated in Table 7, there was a statistically significant difference between the two

groups (F=8.49, p< .01). These results indicated that the mean scores of the ADLs at the second and the sixth weeks after the operation of the experimental group were higher than those of the control group. Therefore, the result supported Hypothesis 1.

Table 7 Comparison of the mean scores of the ADLs at the second and the sixth weeks after the operation between the control group and the experimental group by Analysis of Covariance (ANCOVA) conducted by adjusting scores of the ADLs at predischarge as covariate

Time after operation (week)	Source of variates	df	SS	MS	F	p
The 2nd	Covariates	1	979.58	979.58	47.50	.000
	Main Effects	1	219.11	219.11	10.63	.002
	Residual	51	1051.68	20.62		
	Total	53	2293.50			
The 6th	Covariates	1	1069.25	1069.25	26.78	.000
	Main Effects	1	338.98	338.98	8.49	.005
	Residual	51	2036.16	39.93		
	Total	53	3500.15			

Hypothesis 2 stated that at the second and the sixth week after operation, the mean scores of surgical hip pain of the patients in the experimental group is lower than that of the control group.

As presented in Table 8, the patients' mean scores of surgical hip pain at predischarge were 59.37 and 54.04 in the control group and the experimental group, respectively. At the second and the sixth weeks after the operation, the control group had mean scores of surgical hip pain decreased to 45.30 and 24.48, whereas, the experimental group had decreased to 31.56 and 13.89, respectively.

Table 8 The number, range, mean, and standard deviation (SD) of the surgical hip pain scores at predischarge, the second week, and the sixth week after the operation in the control group and the experimental group

Time	The surgical hip pain score					
	Control group (n=27)			Experimental group (n=27)		
	Range	Mean	SD	Range	Mean	SD
Predischarge	7-92	59.37	20.38	10-90	54.04	21.89
The 2nd week after operation	14-78	45.30	15.00	0-63	31.56	16.24
The 6th week after operation	0-55	24.48	15.55	0-45	13.89	14.63

When testing for the influence of the surgical hip pain scores at predischarge on the surgical hip pain scores at the second week after the operation, the regression analysis showed statistical significance ($F=9.66$, $p< .001$). Thus, it led to a comparison of the mean scores of the surgical hip pain at the second week after the operation between the control group and the experimental group by analysis of covariance (ANCOVA) done by adjusting the surgical hip pain scores at predischarge as the covariate. The result as presented in Table 9 revealed that there was a statistically significant difference between the two groups ($F=9.39$, $p< .01$). In the same way, when testing for the influence of the surgical hip pain scores at predischarge on the surgical hip pain scores at the sixth week after the operation, the regression analysis showed statistical significance ($F=9.12$, $p< .01$). Thus, it led to a comparison of the mean scores of the surgical hip pain at the sixth week after the operation between the control group and the experimental group by analysis of covariance (ANCOVA) done by adjusting the hip pain score at predischarge as the covariate. As presented in Table 9, there was a statistically significant difference between the two groups ($F=5.59$, $p< .05$). These results indicated that the mean scores of the surgical hip pain at the second and sixth weeks after the operation of the experimental group were lower than those of the control group. Therefore, the hypothesis 2 was supported.

Table 9 Comparison of the mean scores of the surgical hip pain at the second and the sixth weeks after the operation between the control group and the experimental group by Analysis of Covariance (ANCOVA) conducted by adjusting scores of the surgical hip pain at predischarge as covariate

Time after operation (week)	Source of variates	df	SS	MS	F	p
The 2nd	Covariates	1	2022.89	2022.89	9.66	0.000
	Main Effects	1	1966.24	1966.24	9.39	0.003
	Residual	51	10681.41	209.44		
	Total	53	15253.20			
The 6th	Covariates	1	1798.71	1798.71	9.12	0.004
	Main Effects	1	1102.01	1102.01	5.59	0.022
	Residual	51	10058.70	197.23		
	Total	53	13372.15			

Hypothesis 3 stated that at the second and the sixth week after operation, the numbers of the postoperative complications of the patients in the experimental group is lower than that of the control group.

As presented in Table 10, the total number of postoperative complications at the second week after the operation was 9 in the control group and 2 in the experimental group. At the sixth weeks after the operation, the total number of postoperative complications was 9 and 1 in the control group and the experimental group, respectively. When analyzed by Chi-square test, significant difference was shown. Thus, hypothesis 3 was supported.

Table 10 Comparison of the numbers of the postoperative complications at the second and the sixth weeks after the operation between the control group and the experimental group by Chi-square test

Time after operation (week)	Complication	Control group (n=27)		Experimental group (n=27)		p
		n	%	n	%	
The 2nd	No	18	66.67	25	92.59	.043
	Yes	9	33.33	2	7.41	
The 6th	No	18	66.67	26	96.30	.014
	Yes	9	33.33	1	3.70	

The types of complications experienced by the patients at the second week and the sixth week after the operation among the two groups are presented in Table 11. At the second week after the operation, the first and second highest postoperative complications were pressure ulcer and urinary tract infection, respectively in the two groups. At the sixth week after the operation, the most frequently reported postoperative complications were muscle atrophy and pressure ulcer in the control group, and only pressure ulcer in the experimental group.

Table 11 Postoperative complications among the control and the experimental groups at the second and the sixth weeks after the operation

Complications [c]	The 2nd week after operation		The 6th week after operation		Total
	Control group (n=27)	Experimental group (n=27)	Control group (n=27)	Experimental group (n=27)	
Pressure ulcer	9	1	4	1	15
UTI	2	1	2	-	5
Pneumonia	-	-	1	-	1
SSI	-	-	1	-	1
Muscle atrophy	-	-	7	-	7
Joint stiffness	-	-	2	-	2

[c] Some patients experienced more than one kind of complications

Hypothesis 4 stated that at the sixth week after operation, the mean scores of patient's satisfaction in the experimental group is higher than that of the control group.

At the sixth week after the operation, the mean scores of patients' satisfaction in the control group and experimental group was 103.04 and 123.67, respectively. When analyzed by independent t-test, it was found that the mean scores of patients' satisfaction between the two groups was statistically significant different, the experimental group was higher than that of the control group ($t = -11.032$, $p < .001$) (see Table 12). Therefore, hypothesis 4 was supported.

Table 12 Comparison of mean scores of patient satisfaction between the control and experimental groups by independent t-test

The subjects	n	Range	Mean	SD	t
Control group	27	79-115	103.04	7.96	-11.032***
Experimental group	27	109-135	123.67	5.57	

*** $p < .001$

CHAPTER V
DISCUSSION

The present study was designed to determine the effectiveness of a Home-Based Management Intervention Program (HMIP) for the family caregivers of elderly patients undergoing hip arthroplasty on patients' recovery and satisfaction with the nursing care received. The results of the study showed the favorable effects of a HMIP on patients' recovery and satisfaction. This chapter will present the details of the discussion related to demographic characteristics of the patients and caregivers, each postoperative recovery index, and patients' satisfaction with care.

Patient's Demographic Characteristics

Most of the patients in the control and the experimental groups were female (81.48% and 85.19%, respectively), with rather similar means of age (75.55 and 76.63 years, respectively). These data were similar to other studies of elderly patients with hip fractures (Khanongnuch, S., 1997; Monkong, S., 1999; Sirisuda Saokhamket, B.E. 2541; Sumana Saenmanoch, B.E. 2541), and were consistent with the studies of prevalence of hip fractures, which were found that higher in women than in men (ratio 2:1 or greater), and aged over 65 years (American Academy of Orthopaedic Surgeons, 2001; Ackermann, 1998: 366; Cumming, et al., 1997: 244). Almost all of hip fractures in this study resulted from simple fall (94.44%), congruent with the previous studies, which found that the major cause of hip fracture was fall (American Academy of Orthopaedic Surgeons, 2001; Hoenig, et al., 1997; Khanongnuch, S., 1997; Sirisuda Saokhamket, B.E.2541; Sumana Saenmanoch, B.E.2541). The majority of the patients in both groups had sustained a fracture of the neck of femur, and again this finding agreed with the studies of Mongkong, S. (1999) and Sumana Saenmanoch (B.E.2541).

Caregiver's Demographic Characteristics

This present study found that the majority of the family caregivers of elderly patients in both groups were female (66.67% and 88.89%, respectively), and more than half were adult children (51.85% and 66.67%, respectively). The mean age was 44.37 years in the control group and 47.11 years in the experimental group. Most of the family caregivers in both groups had education in diploma level or higher (44.44% and 51.85%, respectively), and were employed (62.96%, equally). These caregivers' demographic characteristics were similar to the reports of other family caregivers studied in Thailand (Chanita Maneewan, et al., B.E. 2535; Chavalee Yamvong, B.E.2538; Pichayamongkol, U., 2001; Rumphrada Intorn, B.E.2539; Somrudee Sitthimongkol, B.E.2541; Sumana Saenmanoch, B.E.2541).

Patients' Postoperative Recovery

Postoperative recovery indicators that were selected in the study included ADLs, surgical hip pain, and postoperative complications.

Activities of daily living (ADLs)

Evidence from this study has shown that the HMIP for family caregivers improved abilities to perform the ADLs of elderly patients. The results demonstrated that patients in the experimental group had significant higher ADLs scores than those in the control group at the second and the sixth weeks after the operation.

This research was aimed to enhance the caregivers' ability to provide quality of care to the elderly family member. According to the Roy Adaptation Model, the goal of nursing is to promote adaptation of the person (Roy & Andrews, 1991, 1999). Altering the stimuli enhances the ability of the person's coping mechanisms to respond positively, and the result is adaptive behavior. Family caregiving for an elder post hip arthroplasty at home required considerable physical and psychological efforts. Several demands include helping elders to perform ambulation, ADLs, and IADLs and providing psychological as well as financial support. Studies (Mongkong, S., 1999; Williams, et al., 1996) have shown that family caregivers of patients recovering from hip arthroplasty reported psychological distress (e.g., burden, anxiety, stress), conflicting roles, and lack of knowledge for managing patients' daily life and

behaviors. These are the stimuli that stimulate the family caregivers to adapt themselves in caring for the elderly patients undergoing hip arthroplasty.

The HMIP was developed based on literature review and primarily aimed to promote adaptation of family caregivers in caring for elderly patients undergoing hip arthroplasty at home. It was developed to promote adaptive (positive) responses of caregivers and to convert ineffective response to adaptive ones. The content of the HMIP consisted of educating, training, supporting, counseling caregivers following the guideline by means of a booklets and flipchart. The family caregiver of elderly patients post hip arthroplasty in the experimental group were provided with knowledge and skill training about how to care for the elderly person and how to care for themselves as caregivers. They were taught about the normal aging process, the hip fracture and hip arthroplasty, and were also trained on the hands-on care for the elderly patients at home which included postoperative care and home management to prevent patients' complication and promote patients' recovery (methods of ambulation, exercises, and so on). They were also taught and trained on how to take care of themselves as a caregiver which included time management in caring, strategies to balance their caregiving needs and their own needs, as well as stress management.

During the provision of information on how to care for the elderly patients post hip arthroplasty at home, the teaching and training included demonstration with the practice and the question-answer sessions. Training and demonstration were provided for the family caregivers as well as the patients with an aims to enhance patients' skill and ability to take care of themselves at home which could reduce caregiving demands from their family caregivers. Teaching was individually provided in two-way communication, enabling the provider and the receivers to have a chance for conversation, questioning and exchanging of ideas, and problem-solving. This process aimed to make the family caregivers realize the actual caregiving situation of appropriate care, to help them acquire caring knowledge and skill, to provide them with clear mental image of how the skill should be performed, and to help them gain enough confidence in their ability to care for the patients at home. More importantly, after teaching and training, the family caregivers were provided with booklets for

review. These booklets consisted of the pictures about how to care for post-hip arthroplasty, such as exercises, positioning, etc.

Furthermore, home visits could help family caregivers confront with encountering the problems resulting in decreased stress and anxiety in caring for the elderly patients at home. Visiting the patient and caregiver at home, the researcher and the caregiver had time to discuss their concerns. And as they were the host, they felt at ease and more confident to ask questions. Moreover, the individual approach made the researcher and the caregivers feel closer to each other, and also the researcher could observe the family caregivers' and patients' reaction. Thus, they would receive repetitive explanation when they lacked understanding and/or had any problems. Many studies (Bourgeois, et al., 1997; Buckwalter, et al., 1999; Davis, 1998) revealed that regular home visits could enhance caregivers' efficacy and telephone counseling in times of crisis could reduce caregivers' depression, anger, tension, as well as stress. Hence, nursing activities of the HMIP that provide physical and emotional support for family caregivers could enable family caregivers of elderly patients post hip arthroplasty to develop knowledge, skill, ability, sense of confidence, and reduce their fear, stress, and anxiety in caring for their loved one at home. When the family caregivers have knowledge and skill as well as sense of confidence in caring, they have the ability to perform care for the patients and could balance their own needs and caregiving needs.

Elderly patients post hip arthroplasty often encounter difficulties in their recovery. Postoperative restrictions make it difficult for them to perform the ADLs independently, and may impose additional financial and psychological stresses upon patients. As a result, family caregivers play a vital role in enhancing patients' functional recovery. The family caregivers and patients in the experimental group received detailed instruction on safe methods of carrying out the selected ADLs via the guideline of the HMIP. For example, they were taught the right way in transferring, walking, walking up the stairs, and getting in and out of the bed, with out acutely flexing their operated hip. Furthermore, their learning was reinforced by home visits. These methods of education, support and training might perhaps contribute to family caregivers' confidence to care and help the patients exercise. Consequently, the patients in the experimental group had increased mean scores of the ADLs from

predischarge than those in the control group. The finding corresponded with Baker's study (1993), which examined the effect of the presence of a spouse on the adaptation of patient with stroke after completing rehabilitation. Baker found that the average Barthel Index score on discharge was higher in patients who had a spouse. Likewise, the result of this study was consistent with the studies of Chavalee Yamvong (B.E. 2538) and Sumana Saenmanoch (B.E. 2541) which reported that promoting caregiver participation in care during hospitalization could improve elderly patients' functioning. Similarly, Arom Boonkerd (B.E. 2540) reported that discharge planning could improved cerebrovascular disease (CVD) patients' ability to perform daily activities and caregivers' caring ability, as the post-test abilities were higher than the pre-test abilities and follow-up test abilities were higher than post-test abilities in both patients and caregivers. Finally, an action research study that evaluate the effects of a home healthcare services on ability to perform ADLs of patients with cerebovascular disease by Functional Independence Measure (FIM) score. The results found that after the home healthcare services was ended, the patients performed better ADLs, meanwhile the caregivers could take better care of the patients (Sudthida Rattanasamaharm, B.E. 2542).

Furthermore, based on experience from home care visits, the investigators found that after some post-hip arthroplasty elder patients were discharged from the hospital, they have improved their ADLs performance. However, some of them were afraid to walk because they were fearful that they would fall down again. Additionally, some family caregivers did not allow patients to perform ADLs themselves because they were afraid that the hip-prosthesis head would be slip out of the socket (acetabulum). The investigators suggested and assisted patients to ambulate. The investigators also taught family caregivers to aid patients to walk and to encourage patients to carry out ADLs themselves as best as they could without conflicting with treatment plan or causing them danger. The investigators continued to teach patients and family caregivers until they felt confident that patients could walk and perform ADLs by themselves. It could be concluded that home visiting is an effective approach to promote patients' confidence to resume their normal daily life at the same level of their functional abilities before hip fracture.

Surgical hip pain

The results indicated that the patients in the experimental group had significantly lower pain scores than those in the control group at the second and the sixth weeks after operation. It could be assumed that lower pain in the experimental patients might be accounted for by the efficacy of the HMIP for family caregivers.

As a matter of fact, the hip joint is a ball and socket joint. It is an important joint for standing and walking. Hip arthroplasty inevitably causes substantial pain in patients, particularly in the elderly. Elderly patients would require extensive rehabilitation in the recovery period and need assistance in performing activities and exercises. In general, surgical hip pain tends to be a short duration and acute in nature, it may continue longer depending on the extend of the surgery, the pain threshold of the patients, and response to pain. Family caregivers in the experimental group were taught and trained on how to take care of their relative elderly patients post hip arthroplasty at home. The knowledge that they received included nutrition, exercise that promotes wound healing, and enhances elder recovery. Thus, they had knowledge and skills to provide appropriate care to the patients, such as how to assist patients to perform ADLs, to turn and move properly, and to exercise after pain relief. Family caregivers also had knowledge and skills to diminish pain for patients, such as helping positioning as well as providing appropriate analgesics. Additionally, patients were allowed to be a part of each training session. In doing so, they could gain more understanding about pain and its management either pharmacologic or nonpharmacologic such as relaxation techniques. These may cause patients to have a higher tolerance to pain and to cope with pain more properly. When family caregivers had knowledge and skills for helping patients to alleviate pain, and patients understood how to cope with pain, patients' pain might be decreased. This finding was consistent with the study conducted by Clotfelter (1999) that examined the effectiveness of the education intervention on pain intensity of cancer patients. The results found that the patients in the experimental group had significantly lower pain than those in the control group.

Postoperative complication

Results from this study indicated that the patients in the experimental group had significantly fewer postoperative complications than the patients in the control group at the second and the sixth weeks after the surgery. It could be explained that the HMIP provided to family caregivers might make a significant contribution to prevent postoperative complications in the experimental patients according to many reasons.

As previously mentioned, family caregivers in the experimental group were trained on how to take care of elderly patients at home. In addition, they were coached on how to prevent postoperative complications and to promote recovery in elderly patients (e.g., ambulation methods, exercise). The individualized teaching and training occurred once in hospital and 2-3 times at their home. Furthermore, visiting patients and caregivers at home, the researcher provided teaching and training including demonstration which enabled the caregivers to rehearse or practice. Time for questions and answers was also offered..

In the control group, the family caregivers also received conventional nursing care similarly to the experimental group. They were given the routine information when their relative patients underwent hip arthroplasty by staff nurses that was usually focused on physical care, but the provision of information was unsystematic. Each nurse provided the information based on her own background, knowledge, and experience, so the family caregivers might not have been received comprehensive information. They also received the pamphlet for review about how to care for their relative patients at home. The pamphlet distributed before the patients were discharged was only two pages and contained only brief advice for the family caregivers and their relative patients as well as information concerning about ambulation and complications of the patients. In addition, with shortened hospital length of stay, in this study, the patients' hospitalization after operation ranged from 3-14 day (approximately 8 days), the patients may not be complete recovery and the family caregivers have limited time to learn to help their relative patients in hospital. So that, the family caregivers may have many problems in caring the post hip arthroplasty at home. Therefore, the patients in the control group had more complications than those of in the experimental group.

Additionally, at the sixth week after the operation, seven of 27 patients in the control group had muscle atrophy and two of 27 had joint stiffness, but none of those in the experimental group has these. One possible explanation is that the patients and their family caregivers in the experimental group received booklets to review how to promote patients' recovery at home. It is undeniable that reviewing leads to better memorization, and it is also seen as a way to accumulate knowledge to be recalled when they have any problems in home care. Home visit enabled the family caregivers, patients, and the researcher to establish a good relationship. When they received appropriate advice or had a close interaction with professional nurses, they would tend to gain more knowledge, skills, and confidence in care. Moreover, during home visits, the researcher gave encouragement and empowered both the caregiver and the elder patient to participate in nursing care. These nursing activities led the family caregivers to provide effective care to the patients such as appropriate dietary, active-passive patient exercise, as well as encouraged patients to exercise regularly. The result of this study was consistent with a study by Sherrington and Lord (1997) about the effect of a home exercise program on strength, postural control, and mobility following hip fracture. They reported that the exercise program improved strength and mobility after hip fracture.

Patients' Satisfactions with Nursing Care

The results showed that the experimental patients had significantly higher satisfaction scores than the patients in the control group (Table 12). It could be explained that needs and concerns of the patients in the experimental group were responded to and satisfied by nursing activities; thus promoting them to become satisfied with nursing care that they received. As Eriksen (1995: 61) has stated, the patients would be satisfied with nursing care when their needs, desires, or wants are met. It can be inferred that content and protocol guide in the HMIP could help nurses satisfy the patients' needs.

In caring for the elderly at home, the family caregivers need information about the illness, patient's condition, limitation of the patient, and specific treatment of the patient. This information should be provided before patients are discharged. They need to receive teaching and training on general principles of care as well as emotional

support from nurses (Laitinen, 1992, 1993; Laitinen & Isola, 1996). Moreover, in the present study home visit and telephone counseling allowed the patients and caregivers to ask any questions, provided them with a chance to express their feelings and concerns, and also provided emotional support for both of them. Furthermore, when the patients and their family caregivers had any problems in care at home, they could call the researcher to ask for help. These nursing activities could make the patients feel that they received more attention, affection, and empathic understanding they deserved as well as concern from researcher and their family caregivers.

Most of the patients in the experimental group verbalized their positive attitudes and feelings toward the nursing intervention (HMIP) they had received. They were pleased that the researcher allowed them to share their feelings, concerns, attitudes, and problems. They felt that they had more attention and affection, and also received very good care from their caregivers with love. They also expressed that they appreciated having a chance to learn how to take care of themselves which promoted their recovery. This finding was congruent with the finding of previous studies (Chavalee Yamvong, B.E.2538; Sumana Saenmanoch, B.E.2541) that study interventions provided and enhanced family caregivers to participate more in nursing care.

CHAPTER VI
CONCLUTIONS

This quasi-experimental research conducted to ascertain the effects of a Home-Based Management Intervention Program (HMIP) for the family caregivers of elderly patients undergoing hip arthroplasty on patients' recovery and satisfaction. The conceptual framework of the study was derived from the Roy's Adaptation Model. The study subjects were elderly patients who had fractured a hip and undergoing hip arthroplasty and their relative family caregivers who were recruited from orthopedic wards of two tertiary care hospitals in Bangkok. Data collection was carried out from February 2002 to January 2003. A total of 54 dyads (patients and their relative caregivers) were selected based on the inclusion criteria. They were divided into two groups: the control and the experimental groups (27 dyads for each group). The family caregivers in the control group received only the conventional nursing care provided by staff nurses and the usual follow-up care after discharged from the hospital. On the other hand, the family caregivers in the experimental group were taught and trained on how to care for their relative patients at home and how to care for themselves as caregivers using the HMIP. The teaching and training occurred once in the hospital and three times at their home or the OPD.

The elderly patients were selected under the inclusion criteria: (1) sixty years of age or older, with the scores of the Set Test more than or equal to 25, (2) diagnosis of femoral neck or intertrochanteric hip fracture of nonpathologic origin, and with first-time hip arthroplasty, (3) length of stay after operation less than 15 days, and the scores of Barthel Index less than 24 before discharge, and (4) living in Bangkok or suburban area. The patients who had been bedridden for more than one month before admission were excluded from the study. The primary caregivers of the patients included in the study were the ones who took care of their relatives after discharge at home, eighteen years of age and older (If older than 60, must have scores of the Set Test more than or equal to 25), and visiting the patients at least one time during

hospitalization. The subjects were able to communicate in the Thai language and were willing to participate in this study.

The instrument was composed of two types: the intervention program (HMIP) and data collection instrument. The HMIP was developed based on the Roy's Adaptation Model and a review of related literature on elder care, hip fracture and hip arthroplasty, impact of caregiving, and caregivers' needs. The HMIP included the handbooks and instruction guidelines for the researcher and research assistant, the instruction flip charts, and the booklets for the subjects. The instruments for data collection included: the Demographic Data Form, the Set Test (Isaacs & Akhtar, 1972), the Barthel Index (Thai version) (Chavalee Yamvong, B.E.2538), the Pain Visual Analog Scale (McCaffery & Pasero, 1999: 62), the Postoperative Complication Form, and the Patient's Satisfaction (Thai version) (Chavalee Yamvong, B.E.2538).

Data collection was first started with the control group. Afterward data were collected from the experimental group. This was designed to prevent contamination of nursing care and to avoid causing unnecessary feeling of inequality or unfairness in case a comparison between the two groups was made. All subjects in both groups were approached and explained about research objectives and data collection procedures. The protection of human rights was ensured, and the informed consent forms were read and signed by the patients and their family caregivers prior to their participation in the study. All data were collected by direct assessment due to the set of criteria, as well as semi-structured interviewing based on the questionnaires. Data were then analyzed by using the computer package for Window Program. The finding can be summarized as follows:

1. At the second week and the sixth week after the operation, the mean scores of the ADLs of the patients in the experimental group was statistically significantly higher than that of the control group.

2. At the second and the sixth week after operation, the mean scores of surgical hip pain of the patients in the experimental group was statistically significantly lower than that of the control group.

3. At the second and the sixth week after operation, the numbers of the postoperative complications of the patients in the experimental group was statistically significantly lower than that of the control group.

4. At the sixth week after operation, the mean scores of patient's satisfaction in the experimental group was statistically significantly higher than that of the control group.

Limitations

1. In this study, data collection began with the control group before proceeding to the experimental group. This designed was selected to prevent the contamination of the intervention to the control group. However, despite such attempt, the researcher could not totally control the subjects' exposure to the information as other staff nurses may offer instructions to the subjects. Thus, it might have been possible that both groups of patients' postoperative recovery and satisfaction scores were due to the different environment situation and the unexpected exposure to the necessary information.

2. The sample was not selected by random sampling. However, the homogeneity of the subjects in the control and the experimental groups was tested. The results revealed that the subjects in the control and the experimental groups were not significantly different ($p > .05$).

3. Some family caregivers and their relative patients in the control group ($n = 10$) and in the experimental group ($n = 9$) received home visit by home health care nurses, which was the conventional nursing care. The family caregivers and their relative patients in the experimental group received home visit by the researcher or the assistant not equally. Some dyads ($n = 8$) received home visit two times, while some dyads received home visit three times ($n = 19$). Therefore, it might be affected to the outcomes of this study. However, the numbers of subject in the control group and the experimental group to whom the researcher provided home visits were very nearly ($n = 10$ and $n = 9$, respectively).

Recommendations

The finding of this study provide several implications for the nursing profession including nursing practice, nursing administration, nursing education, and nursing research.

Implications for nursing practice and nursing administration

The results of this study revealed that the HMIP that combines educational and follow-up home visit strategies for the family caregivers of the elderly patients who underwent hip arthroplasty provides effective outcomes. Therefore, this program should combined with the conventional nursing care. Moreover, it could make a contribution to nursing practice by serving as a guideline for home care nurses to assist family caregivers in caring for elderly patients receiving hip arthroplasty. However, to implement the HMIP as a guideline for practice, nurse administrator and their staff nurses should consider the possibilities and the cost and benefit of home care visits. Based on the protocol of the HMIP, one of the criteria for home visit is the ADLs score of the elderly patients undergoing hip arthroplasty before discharge should less than 24. Therefore, this criterion should be included in the selection criteria for home visit by home health care nurse. For the hospital without home health care service for these patients, nurse may refer the elderly post-hip arthroplasty to the nearby health care center to follow-up and home visit.

Implications for nursing education

The role of professional nurse has changed over the years. At present, nurses are charged with the responsibility for not only providing quality care for the patients and their family in hospital, but also performing needed caregiving at their home. In order to prepare student nurses for this expanded role, a certain number of hours in the nursing curriculum should be dedicated to the teaching of continuity of care. Moreover, an awareness of family caregivers' adaptation that can lead to the quality of care for patients should be emphasized to student nurses as well as staff nurses. Teaching and skill training for family caregivers also should be included in continuing education for staff nurses who work with the dependent elderly patients and their caregivers.

Implications for nursing research

1. The present study was conducted with the family caregivers of elderly patients undergoing hip arthroplasty from two settings; as a consequence, the findings of the study might not be generalizable to other groups of the subjects. Thus, similar studies should be carried out of at other hospitals, both in the urban and in the rural areas, to confirm the effectiveness of the HMIP program.

2. Longitudinal studies should be performed to determine the effects of the HMIP for family caregivers of elderly patients undergoing hip arthroplasty on patients' postoperative recovery and satisfaction. For instance, the long-term impact of the HMIP after three or six months should be investigated.

3. From this study, the researcher found that elderly patients aged 70 years or older had difficulty in understanding the Pain Visual Analog scale. The researcher spent a great deal of time to clarify the instruction and the format to elderly patients. Therefore, the investigators should become aware of potential difficulties when using the Visual Analogue Scale to evaluate pain in elder people.

BIBLIOGRAPHY

Ackermann, R. J. (1998). Medical consultation for the elderly patient with hip fracture. The Journal of the American Broad of Family Practice, 11(5), 366-377.

Alexnader, L., Sandridge, J., & Moore, L. (1993). Patient satisfaction: An outcome measure for maternity service. Journal of Perinatal and Neonatal, 7(2), 28-39.

American Academy of Orthopaedic Surgeons. (2001). Fall and Hip Fracture [online]. Available:http://www.orthoinfo.aaos.org/fact/thr_report.cfm?thread_id=77&topcategory=hip. html [2001, September 9].

Arendt, E. A. (Ed.). (1999). Orthopaedic knowledge update. Illinois: American Academy of Orthopaedic Surgeons.

Baker, A. C. (1993). The spouse's positive effect on the stroke patient's recovery. Rehabilitation Nursing, 18, 30-33.

Barangan, J. D. (1990). Factors that influence recovery from hip fracture during hospitalization. Orthopaedic Nursing, 9 (5), 19-28.

Bartlett, J. G. (1994). Peumonia. In W. R. Hazzard, et al. (Eds.), Principles of geriatric medicine and gerontology (3rd ed., pp. 565-573). New York: McGraw-Hill.

Baumgaertner, M. R., Chrostowski, J. H., & Levy, R. N. (1998). Intertrochanteric hip fractures. In B. D. Browner, A. M. Lerine, J. B. Jupiter & P. G. Trafton (Eds.), Skeletal trauma fracture, dislocations, ligamentous injuries (Vol. 2, 2nd ed., pp. 1833-1881). Philadelphia: W. B. Saunders.

Berg, H. E., Laesson, L., & Tesch, P. A. (1997). Lower limb skeletal muscle function after 6 weeks of bed rest. Journal of Apply Physiology, 82(1), 182-188.

Bergstrom, N., et al. (1994). Treatment of pressure ulcers: Clinical practice guideline. Rockville: U. S. Department of Health and Human Services. Public Health Service, Agency for Health Care Policy and Research.

Bernardini, B., et al. (1995). Comorbidity and adverse clinical events in the rehabilitation of older adults after hip fracture. Journal of the American Geriatrics Society, 43, 894-898.

Berquist, T. H., Lewallen, D. G., & McComb, B. L. (1995). The pelvis and hips. In T. H. Berquist (Ed.), Imaging atlas of orthopedic appliances and prostheses (pp. 217-352). New York: Raven Press.

Bonica, J. J. (1990). Postoperative pain. In J. J. Bonica (Ed.), The Management of pain (Vol. 1, 2nd ed., pp. 461-480). Philadelphia: Lea & Febinger.

Boonyaratavaj, N., et al. (2001). Physical activity and risk factors for hip fractures in Thai woman. Osteoporos Int, 12, 244-248.

Bottle, M. J., Nickel, V. L., & Akeson, W. H. (1988). Spasticity and contracture physiologic aspects of formation. Clinical Orthopaedic and Related Research, 233, 7-18.

Bourgeois, M. S., Schulz, R., & Beach, S., & Palmer, B. (1997). Modifying repetitive verbalizations of community-dwelling patients with AD. Gerontologist, 37, 30-39.

Brown, M. D. (1988). Functional assessment of the elderly. Journal of Gerontological Nursing, 14(May), 13-17.

Browning, M. A., Hogstel, M. O. (1994). Family support. In M. O. Hogstel (Ed.), Nursing care of the older adult (pp. 406-435). New York: Delmar.

Buckwalter, K. C., et al. (1999). A nursing intervention to decrease depression in family caregivers of person with dementia. Archives of Psychiatric Nursing, 13, 80-88.

Bugg, C., Alexander, H., & Hagen, S, (1999). Stroke patients' informal caregivers: Patient, caregiver, and service factors that affect caregiver strain. Stroke, 30 (8), 1517-1523.

Bull, M. J. (1990). Factors influencing family caregivers burden and health. Western Journal of Nursing research, 12, 758-776.

_____. (1992). Managing the transition from hospital to home. Qualitative Health Research, 2(1), 27-41.

Bull, M. J., Hansen, H. E., & Gross, C. R. (2000). Differences in family caregiver outcomes by their level of involvement in discharge planning. Applied Nursing Research, 13(2), 76-82.

Bull, M., Maruyama, G., & Luo, D. (1995). Testing of a model for post hospital transitions of family caregivers for elderly persons. Nursing Research, 44 (3),132-138.

Calder, S. J., Anderson, G. H., Jagger, C., Harper, W. M., & Gregg, P. J. (1996). Unipolar or bipolar prosthesis for displaced intracapsular hip fracture in octogenarians. The Journal of Bone and Joint Surgery, 78-B, 3, 391-394.

Carpenter, B. D. (2001). Attachment bonds between adult daughters and their older mothers: Associations with contemporary caregiving. The Journal of Gerontology, 56B(5), 257-266.

Congdon, J. G. (1994). Meaning the incongruities: The hospital discharge experience or elderly patients, their families, and nurses. Applied Nursing Research, 7 (3), 125-131.

Chan, K. C., & Gill, G. S. (2000). Cemented hemiarthroplasties for elderly patients with intertrochanteric fractures. Clinical Orthopaedic and Related Research, 371, 206-215.

Cifu, D. (2001). Rehabilitation following hip fracture. [online] Available: http://www.pmr.vcu.edu/department/faculty/dcifu/hip1/ [2001, December 9].

Cifu, D. X., Burnett, D., & McGowan, J. P. (2001). Rehabilitation of hip fractures [online] Available: http://www.pmr.vcu.edu/presentations/dcifu/hipfract/ [2001, November 26].

Clotfelter, C. E. (1999). The effect of an educational intervention on decreasing pain intensity in elderly people with cancer. Oncology Nursing Forum, 26(1), 27-33.

Congdon, J. G. (1994). Meaning the incongruities: The hospital discharge experience or elderly patients, their families, and nurses. Applied Nursing Research, 7 (3), 125-131.

Corrigan, B., et al. (1999). Preventing falls in acute care. In I. Abraham, M. M. Bottrell, T. Fulmer & M. D. Mezey, Geriatric nursing protocols for best practice (pp. 77-99). New York: Springer.

Cousin, M., & Power, I. (1999). Acute and postoperative pain. In P. D. Wall, R. Melzack (Eds.), Textbook of pain (4th ed., pp. 447-491). Edinburgh: Churchill Living Stone.

Craik, R. L. (1994). Disability following hip fracture. Physical Therapy, 74(5), 387-398.

Cree, M., et al. (2000). Mortality and institutionalization following hip fracture. Journal the American Geriatrics Society, 48(3), 283-288.

Cree, M.,Carriere, K. C., Soskolne, C. L., Suarez-Almazor, M. (2001). Functional dependence after hip fracture. American Journal of Physical Medicine & Rehabilitation, 80(10), 736-743.

Cummings, S. R., et al. (1988). Recovery of function after hip fracture The role of social supports. Journal of the American Geriatrics Society, 36(6), 801-806.

Cummings, R. G., & Klineberg, R. J. (1994). Fall frequency and characteristics and the risk of hip fractures. Journal of the American Geriatrics Society, 42, 774-778.

Cumming, S. R., Nevitt, M. C., & Cummings, S. R. (1997). Epidemiology of hip fracture. Epidemiologic Reviews, 19(2), 244-257.

Davis, B. (1992). Acute illness and accidents. In A. F. Ferrini & R. L. Ferrini, Health in the later Years (2nd ed., pp. 167-199). Wisconsin: Brown & Benchmark.

Davis, L. L. (1992). Building a science of caring for caregivers. Family Community Health, 15(2), 1-10.

_____. (1998). Telephone-based interventions with family caregivers: A feasibility study. Journal of Family nursing, 4, 255-270.

_____. (2001). Altered family processes. In M. L. Mass, T. Tripp-Reimer, K. C. Buckwalter, M. G. Titler, Lt. Col. M. D., Hardy, & J. P. Specht (Eds.), Nursing care of older adults: Diagnoses, outcomes, & interventions (pp. 719-727). St. Louis: Mosby.

Di Cesare, P. E. (1999). Hip, thigh, knee, and leg. In J. M. Spivak, P. E. Di Cesare, D. S. Feldman, K. J. Koval, A. S. Rokito & J. D. Zuckerman (Eds.), Orthopaedics: A study guide (pp. 107-121). New York: McGraw Hill.

Donabedian, A. (1988). The quality of care: How can it be assessed. Journal of The American Association, 260(12), 1743-1748.

Downton, J. H. (1993). Falls in the elderly. London: Edward Arnold.

Eriksen. L. R. (1987). Patient satisfaction: An indicators of nursing care quality. Nursing Research, 18(7), 31-35.

_____. (1995). Patient satisfaction with nursing care: concept clarification. Journal of Nursing Management, 3(1), 59-76.

Faison, K. J., Faria, S. H., & Frank, D. (1999). Caregivers of chronically ill elderly: Perceived burden. Journal of Community Health Nursing, 16(4), 243-253.

Fein, A. M. (1994). Pneumonia in the elderly Special diagnostic and therapeutic considerations. Medical Clinics of North America, 78(5), 1015-1033.

Feldt, K. S., & Oh, H. L. (2000). Pain and hip fracture Outcomes for older adults. Orthopaedic Nursing, 19(6), 35-44.

Ferrans, C. E., Powers, M. J. & Kasch, C. R. (1987). Satisfaction with health care of hemodialysis patients. Research in Nursing & Health, 10, 367-374.

Flahaerty, E. (2001). Assessment pain in older adults. Clinical Nurse Specialist, 14(5), 236-237.

Fosbinder, D. (1994). Patient perceptions of nursing care: an emerging theory of interpersonal competence. Journal of Advanced Nursing, 20,1085-1093.

Garner, J. S., Jarvis, W. R., Emori, T. G., Horan, T. C., & Hughes, J. M. (1988). CDC definitions for nosocomial infections, 1988. American Journal of Infection Control, 16(3), 128-140.

Gebhard, J. S., Amstutz, H. C., Zinar, D. M., & Dorey, F. J. (1992). A comparison of total hip arthroplasty and hemiarthroplasty for treatment of acute fracture of the femoral neck. Clinical Orthopaedic and Related Research, 282, 123-131.

Given, B. A., & Given, C. W. (1991). Family Caregiving for the elderly. Annual Review of Nursing Research, 9, 77-101.

Given, B. A., Kozachik, S. L., Collins, C. E., Devoss, & Given, C. W. (2001). Cargiver role strain. In M. L. Maas, T. Tripp-Reimer, K. C. Buckwalter, M. G. Titler, M. D. Hardy & J. P. Specht (Eds.), Nursing care of older adults: Diagnoses, outcomes, & Interventions (pp. 679-695). St. Louis: Mosby.

Goldstein, F. G., Strasser, D. C., Woodard, J. L., & Roberts, V. (1997). Functional outcome of cognitively impaired hip fracture patients on a geriatric rehabilitation unit. Journal of the American Geriatrics Socoiety, 45(1), 35-42.

Grau, L. (1984). What older adult expect form the nurses. Geriatric Nursing (January and February), Faculty of Graduate studied.

Greene, M. G., Adelman, R. O., Friendmann, E., & Charon, R. (1994). Older patient satisfaction with communication during the initial medical encounter. Social science & Medicine, 38(9), 1279-1288.

Greeneich, D. (1993). The link between new and return business and quality care: Patient satisfaction. Advanced in Nursing Science, 16(1), 62-72.

Grisso, J. A., & Kaplan, F. (1994). Hip fractures. In W. R. Hazzard, et al. (Eds.), Principles of Geriatric Medicine and Gerontology (3rd ed., pp. 1321-1327). New York: McGraw Hill.

Gross, P. A. & Levine, J. F. (1993). Infection in the elderly. In R. P. Wenzel (Ed.), Prevention and control of nosocomial infection (pp. 897-922). Maryland: Williams & Wilkins.

Guccione, A. A., Fagerson, T. L. & Aderson, J. J. (1996). Regaining functional independence in the acute care setting following hip fracture. Physical therapy, 7(8), 818-826.

Gunningberg, L., Lindholm, C., Carlsson, M., & Sjoden, P. (2000). The development of pressure ulcers in patients with hip fractures: inadequate nursing documentation is still a problem. Journal of Advanced Nursing, 31(5), 1155-1164.

Gustilo, R. B., Leagogo, L. A. C. (1989). Management of infected total hip replacement. In R. B. Gustilo (Ed.), Orthopaedic infection: Diagnosis and treatment (pp. 224-233). Philadelphia: W. B. Saunders.

Haley, W., Levine, E., Brown, L., Berry, J., & Hughes, G. (1987). Psychological, social, and health consequences of caring for a relative with senile dementia. Journal of the American Geriatrics Society, 35, 405-411.

Hall, J.A. & Dornan, M. C. (1988). What patients like about their medical care and how often they are asked A meta analysis of the satisfaction literature. Social Science & Medicine, 27, 935-939.

Hanucharurnkul, S., Leucha, Y., Wittya-Sooporn, J., & Maneesriwongul, W. (2001). An integrative review and meta-analysis of self-care research in Thailand. Thai Journal of Nursing Research, 5(2), 119-132.

Hawkins, B. (1996). Daughters and caregiving: Taking care of our own. AAOHN Journal, 44(9), 433-436.

Hays, A. (1984). The set test to screen mental status quickly. Geriatric Nursing, 5(2), 96-97.

Hays, R. (1995). Pain assessment in the elderly. British Journal of Nursing, 4(20), 1199-1204.

Herr, K. A., & Mobily, P. R. (1991). Complexities of pain assessment in the elderly Clinical considerations. Journal of Gerontological Nursing, 17(4), 12-19.

Hileman, J. W., Lackey, N. R., & Hassanien, R. S. (1992). Identifying the needs of home caregivers of patients with cancer. Oncology Nursing Forum, 9(5), 771-777.

Hinshaw, A. S. & Atwood, J. R. (1982). A patient satisfaction instrument: precision by replication. Nursing Research, 31(3), 170-175.

Hoenig, H., Rubenstein, L. V., Sloane, R ., Horner, R., & Kahn, K. (1997). What is the role of timing in the surgical and rehabilitative care of community-dwelling older persons with acute hip fracture?. Archives of Internal Medicine, 157 (5), 513-520.

Holmes, J. D., House, A. O. (2000). Psychiatric illness in hip fracture. Age and Aging, 29, 537-546.

Horan, T. C., Gaynes, R. P., Martone, W. J., Jarvis, W. R., & Emori, T. G. (1992). CDC definitions of nosocomial surgical site infections, 1992: A modification of CDC definitions of surgical wound infections. Infection Control and Hospital Epidemiology, 13(10), 271-274.

Hoyert, D. L., & Seltzer, M. M. (1992). Factors related to the well-being and life activities of family caregivers. Family Relation, 41, 74-81.

Iorio, R., Healy, W. L., Lemos, D. W., Appleby, D., Lucchesi, C. A., & Saleh, K. J. (2001). Displaced femoral neck fractures in the elderly. Clinical Orthopaedics and Related Research, 383, 229-242.

Isaacs, B., & Akhtar, J. (1972). The set test: A rapid test of mental function in old people. Age and Aging, 1, 222-226.

Isaacs, B., & Kennie, A. T. (1973). The set test as an aid to the detection of dementia in old people. The British Journal of Psychiatry, 123, 467-470.

Jensen, S., & Given, B. A. (1991). Fatigue affecting family caregivers of cancer patients. Cancer Nursing, 14(4), 181-187.

Jitapunkul, S., Kamolratanakul, P., Chandraprasert, S., & Bunnag, S. (1994). Disability among Thai elderly living in Klong Toey slum. Journal of the Medical Association of Thailand, 77(5), 231-238.

Jitapunkul, S., & Bunnag, S. (1997). Aging in Thailand. Bangkok: Thai Society of Gerontology and Geriatric Medicine.

Jimenez, M. L. (1999). Pelvis, acetabulam, and hip trauma. In M. E. Bartez, et al. (Eds.), Orthopaedic surgery the essentials (pp. 467-494). New York: Maple-vail.

Johnson, C. C. (1991). Definition, classification, and clinical presentation of urinary tract infections. Medical Clinics of North America, 75(2), 241-251.

Johnson, E. E., & Gebhard, J. S. (1991). Hemiarthroplasty: bipolar and unipolar. In H. C. Amstutz (Ed.), Hip arthroplasty (pp. 917-927). New York: Churchill Livingstone.

Jones, P. S., Jaceldo, K. G., Lee, J. R., Zhang, X. E., & Meleis, A. I. (2001). Role integration and perceived health in Asian American women caregivers. Research in Nursing & Health, 24, 133-144

Kenzora, J. E., et al. (1998). Outcome after hemiathroplasty for femoral neck fracture in the elderly. Clinical Orthopedic and Related Research, 348, 51-58.

Khanongnuch, S. (1997). Risk Factors for hip fracture in female elderly. Master's thesis of science (Epidermiology), Faculty of Graduate Studies, Mahidol University.

Kippenbrock, T., & Soja, M. E. (1993). Preventing falls in the elderly: Interviewing patients who have fallen. Geriatric Nursing, 14(4), 205-209.

Koval, K. J., & Zuckerman, J. D. (1994). Current concept review functional recovery after of the hip. The Journal of Bone and Joint Surgery, 76-A (5), 751-758.

Koval, K. J., Skovron, M. L., Aharonoff, G. B., Meadows, S. E., & Zuckerman, J. D. (1995). Ambulatory ability after hip fracture A prospective study in geriatric patients. Clinical Orthopaedic and Related Research, 310, 150-159.

Koval, K. J Egol, K. A., & Zuckerman, J. D. (1997). Hip fracture and dislocations. In R. Dee, L. C. Hurst, M. A. Gruber & S. A. Kottmeier (Eds.), Principle of orthopedic practice (2nd ed., pp. 465-481). New York: McGraw- Hill.

Koval, K. J., Skovron, M. L., Aharonoff, G. B., & Zuckerman, J. D. (1998). Predictors of functional recovery after hip fracture in the elderly. Clinical Orthopaedic and Related Research, 348, 22-28.

Koval, K. J. (1999). Hip fractures: General considerations. In J. M. Spivak, P. E. Di Cesare, D. S. Feldman, K. J. Koval, A. S. Rokito & J. D. Zuckerman (Eds.), Orthopedics a study guide (pp. 537-543). New York: McGraw- Hill.

Krach, P., & Brooks, J. (1995). Responsibilities & needs of working adult who are primary caregivers of older persons. Journal of Gerontological Nursing, 21 (10), 41-50.

Krupat, E., Fancey, M. & Cleary, P. D. (2000). Information and its impact on satisfaction among surgical patients. Social Science & Medicine,51, 1817-1825.

Laitinen, P. (1992). Participation of informal caregivers in the hospital care of elderly patients and their evaluations of the care given: pilot study in three different hospitals. Journal of Advanced Nursing, 17, 1233-1237.

_____. (1993). Participation of caregivers in elderly-patient hospital care: Informal caregiver approach. Journal of Advanced Nursing, 18(9), 1486-1487.

Laitinen, P & Isola, A. (1996). Promoting participation of informal caregivers in the hospital care of the elderly patient: informal caregivers' perceptions. Journal of Advanced Nursing, 23, 942-947.

La Monica, E. L., Oberst, M. T., Madea, A. R., & Wolf, R. M. (1986). Development of a patient satisfaction scale. Research in Nursing and Health, 9(3), 43-50.

Lau, E. M. C., et al. (2001). Risk factor for hip fracture in Asian men and woman: The Asian osteoporosis study. Journal of Bone and Mineral research, 16(3), 572-580.

Lausawatchaikul, P. (1999). Related factors and outcome of falls in the elderly. Master's thesis in Nursing Science (Adult Nursing), Faculty of Graduate Studies, Mahidol University.

LeBlance, A., Gogia, P., Schneider, V., Krebs, J., Schonfeld, E., & Evans, H. (1988). The American Journal of Sport Medicine, 16(6), 624-629.

Lee, B. P. H., Berry, D. J., Harmsen, W. S., & Sim, F. H. (1998). Total hip arthroplasty for the treatment of and acute fracture of the femoral neck. The Journal of Bone and Joint Surgery, 80-A(1), 70-75.

Lewis, K. E. & Woodside, R. E. (1992). Patient satisfaction with care in the emergency department. Journal of Advanced Nursing, 17, 959-964.

Lichtblau, S. (2000). Hip fracture: surgical decisions that affect medical management. Geriatrics, 55(4), 50-56.

Lim,Y., Luna, I., Cromwell, S. L., Phillips, L. R., Russell, C. K. & Ardon, E. T. (1996). Toward a cross-cultural understanding of family caregiving burden. Western Journal of Nursing Research, 18(3), 252-266.

Lisanti, P. (1983). Mobility. In E. A. Mahaney & J. P. Flynn (Eds.), Handbook of Medical-Surgical Nursing (pp. 125-137). New York: Wiley.

Long, C. M. (1991). Family care of the elderly: Stress, appraisal, and coping. Journal of Applied Gerontology, 10(3), 311-327.

Longman, A. J., Atwood, J. R., Benedict, J., & Shang, T. C. (1992). Care needs of home-based cancer patients and their caregivers: Qualitative finding. Cancer Nursing, 15: 182-189.

Lueckenotte, A. G. (1996). Home care. In A. G. Lueckenotte (Ed.), Gerontologic nursing (pp. 913-943). St. Louis: Mosby.

Lubkin I. M., & Payne, M. E. (1998). Family caregivers. In I. M. Lubkin & P. D. Larsen (Eds.), Chronic illness: Impact and intervention (2nd ed., pp. 258-282). Boston: Jones and Bartlette.

Luther, K. M. (1996). Data-driven interventions to improve patient satisfaction. Journal of Nursing Care Quality, 10(4), 33-39.

Lu-Yao, G. L., Keller, R. B. Littenberg, M. B. & Wennberg, J. E. (1994). Outcome after displaced fractures of the femoral neck. The Journal of Bone and Joint Surgery, 76-A(1), 15-25.

Lyons, A. R. (1997). Clinical outcome and treatment of hip fractures. The American Journal of Medicine, 103(2A), 51S-64S.

Madsen, O. R., Lauridsen, U. B. & Sorensen, O. H. (2000). Quadriceps strength woman with a previous hip fracture: relationship to physical ability and bone mass. Scandinavian Journal of Rehabilitation Medicine, 32, 37-40.

Mahon, Y. (1996). An analysis of the concept: Patient satisfaction as it relates to contemporary nursing care. Journal of Advanced Nursing, 24(6), 1241-1248.

Mahoney, F. I. & Barthel, D. W. (1965). Functional evaluation: the Barthel Index. Maryland State Medical Journal, 14, 61-65.

Magee, D. J. (Ed.). (1997). Orthopedic physical assessment. (3rd ed.). Philadelphia: W. B. Saunders.

Marek, J. F. (1999). Management of persons with trauma to the musculoskeletal system. In W. J. Phipp, J. K. Sands & J. F. Marek (Eds.), Medical-Surgical Nursing (6th ed., pp. 1915-1955). St. Louis: Mosby.

Marottoli, R. A., Berkman, L. F., & Coonney, L. M. Jr. (1992). Decline in physical function following hip fracture. Journal of the American Geriatrics society, 40, 861-866.

Marottoli, R. A., Berkman, L. F., Leo-Summers L., & Coonney, L. M. Jr. (1994). Predictors of mortality and institutionalization after hip fracture. The New Haven EPESE cohort. American Journal of Public Health, 84, 1807-1812.

Matteson, M. A. (1997). Age-related changes in the musculoskeletal system. In M. A. Matteson, E. S. McConnell & A. D. Linton (Eds.), Gerontological nursing concept and practice (2nd ed., pp. 198-221). Philadelphia: W. B. Saunders.

McCaffery, M., & Pasero, C. (1999). Assessment underlying complexities, misconceptions, and practical tool. In M. Margo & P. Chris (Eds.), Pain Clinical Manual (2nd ed., pp. 35-102). St. Louis: Mosby.

Meere, P. A., Di Cesare, P. E., & Dayan, A. J. (1999). Hip. In J. M. Spivak, P. E. Di Cesare, D. S. Feldman, K. J. Koval, A. S. Rokito & J. D. Zuckerman (Eds.), Orthopaedics A study guide (pp. 303-315). New York: McGraw Hill.

Mick, D. J. (1997). Pneumonia in elders recognition of symptoms, prompt diagnosis, and administration of appropriate antibiotics can reduce complications of pneumonia. Geriatric Nursing, 18(3), 99-102.

Milde, F. K. (1981). Physiological immobilization. In L. K. Hart, J. L. Reese & M. O. Fearing (Eds.), Concepts common to acute illness (pp. 67-109). St. Louis: Mosby.

Miller, J. M. (1995). Falling and the elderly. In M. Stanley & P. G. Beare (Eds), Gerontological Nursing (pp. 281-296). Philadelphia: F.A. Davis.

Mobily, P. R., & Skemp Kelly, L. S. (1991). Iatrogenesis in the elderly Factors of immobility. Journal of Gerontological Nursing, 17(9), 5-11.

Monkong, S. (1999). Measuring caregiver burden: effect on the primary caregiver of Thai elderly with hip fracture. Unpublished master's thesis, University of Michigan, Ann Arbor, USA.

Munro, B. H., Jacobsen, B. S., & Brooten, D. A. (1994). Re-examination of the psychometric characteristics of the La Monica-Oberst patient satisfaction scale. Research in Nursing and Health, 17(2), 119-125.

Naylor, M. D. (1990), Comprehensive discharge planning for hospitalized elderly: A pilot study. Nursing Research, 30(3), 156-161.

Naylor, M. D., Munro, B. H., & Brooten, D. A. (1991). Measuring the effectiveness of nursing practice. Clinical Nurse Specialist, 5(4), 210-215.

Nelson, L., Taylor, F., Adams, M., & Parker, D. E. (1990). Improving pain management for hip fractured elderly. Orthopaedic Nursing, 9(3), 79-83.

Novy, C. M., & Jagmin, M. G. (1997). Pain management in the elderly orthopaedic patients. Orthopaedic Nursing, 16(1), 51-56.

Nugent, I. M., Ivory, J. P., & Ross, A. C. (Eds.). (1995). Key topics in orthopaedic surgery. Oxford: BIOS Scientific.

Oberst, M. T., (1984). Patients' perceptions of care: Measurement of quality and satisfaction. Cancer, 53(May 15), 2366-2375.

O' Leary, A. (1992). Patient satisfaction as a measure of quality in the care of the elderly. British Journal of Nursing, 1(9), 470-472.

Paudel, J. S. (1998). Factors affecting the satisfaction of care takers of ARI children towards services at Ayuthaya provincial Hospital, Thailand. Master's thesis in Primary Health Care Management, Faculty of Graduate Studies, Mahidol University.

Pappas, P. G. (1991). Laboratory in the diagnosis and management of urinary tract infections. Medical Clinics of North America, 75(2), 313-325.

Pasero, C., Paice, J. A., & McCaffery, M. (1999). Basic mechanisms underlying the causes and effects of pain. In M. Margo & P. Chris (Eds.), Pain Clinical Manual (2nd ed., pp. 15-34). St. Louise: Mosby.

Penning, M. J. (1998). In the middle: Parental caregiving in the context of other roles. Journal of Gerontology: Psychological sciences, 53B(4), S188-S197.

Perez, E. D. (1994). Hip fracture: Physicians take more active role in patient care. Geriatrics, 49 (4), 31-37.

Periard, M. E., Ames, B. D. (1993). Lifestyle changes and coping patterns among caregivers of Stroke survivors. Public Health Nursing, 10, 252-256.

Pichayamongkol, U. (2001). Nurses' and caregivers' perception on self-care requisites in elderly patients with heart failure, and caregivers' efficacy. Master's thesis in Nursing Science (Adult Nursing), Faculty of Graduate Studies, Mahidol University.

Polit, D. F., & Hungler, B. P. (1999). Nursing research Principles and methods. Philadelphia: Lippincott.

Quayhagen, M. P., & Quayhagen, M. (1988). Alzheimer's stress: coping with the caregiving role. The gerontologist, 28(3), 391-396.

Reardon, K., Galea, M., Dennelt, X., Choong, P., & Byrne, E. (2001). Quadriceps muscle wasting persists 5 months after total hip arthroplasty for osteoarthritis of the hip: a pilot study. Internal Medicine Journal, 31, 7-14.

Robinson, S. B. (1999). Transitions in the lives of elderly women who have sustained hip fractures. Journal of Advanced Nursing, 30(6), 1341-1348.

Ross, M. M., & Crook, J. (1998). Elderly recipients of home nursing services: pain, disability and functional competence. Journal of Advanced Nursing, 27, 1117-1126.

Roy, S. C., & Andrews, H. A. (1991) The Roy Adaptation Model. Norwalk: Appleton & Lange.

_____. (1999). The Roy Adaptation Model. (2nd ed.). Connecticut: Appleton & Lange.

Russwurm, M. A. & Lanham, D. M. (1998). Discharge planning for elderly patients. Journal of Gerontological Nursing, 24(5), 14-21.

Salkeld, G., et al. (2000). Quality of life related to fear of falling and hip fracture in older woman: A time trade off study. British Medical Journal, 320, 341-346.

Salter, R. S. (1993). Indication, contraindications and alternatives. In N. S. Eftekhar & R. J. Demarest (Eds.), Total Hip Arthroplasty (Vol. 1, pp. 423-491). St. Louis: Mosby.

Schoenfelder, D. P., Swanson, E. A., Specht, J, K, Maas, M., & Johnson, M. (2000). Outcomes indicators for direct and indirect caregiving. Clinical Nursing Research, 9(11), 47-69.

Shah, S., Vanclay, F., & Copper, B. (1989). Improving the sensitivity of the Barthel Index for stroke rehabilitation. Journal of Clinical Epidemiology, 42(8), 703-709.

Sheehan, N. W., & Nuttall, P. (1988). Conflict, emotion, and personal strain among family caregivers. Family Relation, 37, 92-98.

Shepherd, S. M., & Prescott, R. J. (1996). Use of standardized assessment scales in elderly hip fracture patients. Journal of the Royal College of Physicians of London, 30(4), 335-343.

Sheppard, M. (1993). Client satisfaction, extended intervention and interpersonal skills in community mental health. Journal of Advanced Nursing, 18,246-259.

Sherrington, C., & Lord, S. R. (1997). Home exercise to improve strength and walking velocity after hip fracture: A randomized controlled trial. Archives of Physical Medicine Rehabilitation, 78, 208-212.

Showalter, A., Burger, S., & Salyer, J. (2000). Patients' and their spouses' needs after total joint arthroplasty: A pilot study. Orthopaedic Nursing, 19(1), 49-57.

Shyu, Y. L. (2000). Role turning between caregivers and care receiver during discharge transition: An illustration of role function mode in Roy's Adaptation Theory. Nursing Science Quarterly, 13(4), 323-331.

Silliman, R. A., & Sternberg, J. (1988). Family caregiving: Impact of patient functioning and underlying causes of dependency. The Gerontologist, 28 (3), 377-382.

Sirapo-ngam, Y. (1994). Stress, caregiving demands, and coping of spousal caregivers of Parkinson's patients. Doctoral dissertation, University of Alabama at Birmingham, U.S.A.

_____. (2002). Family caregiving research in Thailand: A literature review. (An abstract) Poster presentation in The 3rd International Conference on Family Care, Arlington, VA.

Sitzia, J., & Wood, N. (1997). Patient satisfaction: A review of issues and concepts. Social Science & Medicine, 45(12), 1829-1843.14.

Smeltzer, S. C., & Bare, B. G. (Eds.). (2000). Textbook of medical – surgical nursing (Vol. 2, 9th ed). Philadelphia: Lippincott.

Smutraprapoot, P. (1997). Patient satisfaction towards the services of health center, 24 B.M.A. Master's thesis in primary health care management, Faculty of Graduate Studies, Mahidol University.

Springer, D., & Brubaker, T. (Ed.). (1990). Family caregivers and dependent elderly (3rd ed.). London: Sage.

Starrels, M. E., Dayton, B. I., Dowler, B. I., & Dowler, D. W., & Neal, M. E. (1997). The stressors of caring for a parent: Effects of the elder's impairment on an employed adult child. Journal of Marriage and family, 59(11),860-872.

Strawbridge, W. J., Wallhagen, M. I., Shema, S. J., & Kaplan A,G. (1997). New burdens or more of the same? Comparing grand parents, spouse, adult child. Journal of Marriage and family, 59(11), 505-510.

Suriyawongpaisal, P., et al. (1994). A multicenter study on hip fractures in Thailand. Journal of the Medicine Association of Thailand, 77(9), 488-495.

Swiontkowski, M. F. (1998). Intracapsular hip fractures. In B. D. Browner, A. M. Lerine, J. B. Jupiter & P. G. Trafton, Skeletal trauma fractures dislocations. ligamentous injuries (Vol. 2, 2nd ed., pp. 1751-1832). Philadelphia: W.B. Saunders.

Thomas, L. H. & Bond, S, (1996). Measuring patients' satisfaction with nursing: 1990-1994. Journal of Advanced Nursing, 23, 747-756.

Thompson, D. R., Webster, R. A., & Meddis, R., (1990). In-hospital counseling for first-time myocardial infarction patients and spouses: effects on satisfaction. Journal of Advanced Nursing, 15, 1064-1069.

Tideiksaar, R. (1996). Preventing falls: How to identify risk factors, reduce complications. Geriatrics, 51(2), 43-53.

Tinetti, M. E., et al. (1997). Systematic Home-Based physical and functional therapy for older persons after hip fracture. Archives of Physical Medicine and Rehabilitation, 78, 1237-1244.

_____. (1999). Home-based multicomponent rehabilitation program for older persons after hip fracture: A randomized trial. Archives of Physical Medicine and Rehabilitation, 80, 916-922.

Thiamwong, L. (2001). The development of an instrument to assess falls in Thai community-dwelling elderly. Master's thesis in Nursing Science (Adult Nuring), Faculty of Graduate Studies, Mahidol University.

Thomas, B. J., Amstutz, H. C., & Yao, J. (1991). Surgical approaches to the hip joint. In H. C. Amstutz (Ed.), Hip arthroplasty (pp. 213-226). New York: Churchill Livingstone.

Thomas, H. O. (1993). Applied Surgical Approaches. In N. S. Eftekhar & R. J. Demarest (Eds.), Total Hip Arthroplasty (Vol. 1, pp. 51-74). St. Louis: Mosby.

Van Balen, R., Steyerberg, E. W., Polder, J. J., Ribber, T. L. M., Habbema, J. D. F.,& Cools, H. J. M. (2001). Hip fracture in elderly patients outcomes for function, quality of life, and type of residence. Clinical Orthopaedic and Related Research, 390, 232-243.

Ventura, M. R., Fox, R. N., Corley, M. C. & Mercurio, S. M. (1982). A patient satisfaction measure as a criterion to evaluate primary nursing. Nursing Research, 31(4), 226-230.

Vinya-nguag, P. (1989). Effects of Application of King's Theory of Goal Attainment on Patient's Recovery from Surgery and Satisfaction. Master's thesis in Science (Nursing), Faculty of Graduate Studies, Mahidol University.

Weuve, J. L., Boult, C., & Morishita, L. (2000), The effects of outpatient geriatric evaluation and management on caregiver burden. The Gerontologist, 40(4), 429-436.

Wienke, K. (1994). Assessment and management of immobility. In A. B. Maher, S. W. Salmond & T. A. Pellino (Eds.), Orthopaedic Nursing (pp. 63-84). Philadelphia: W. B. Saunders.

Williams, B. (1994). Patient satisfaction: A valid concept?. Social Science & Medicine, 38(4), 509-516.

Williams, M. A., Oberst, M. T., & Bjorklund, B. C. (1994a). Early outcomes after hip fracture among women discharged home and to nursing homes. Research in Nursing & Health, 17, 175-183.

_____. (1994b). Post hospital convalescence in older woman with hip fracture. Orthopaedic Nursing, 13(4), 55-64.

Williams, M. A., Oberst, M. T., Bjorklund, B. C., & Hughes, S. H. (1996). Family caregiving in cases of hip fracture. Rehabilitation Nursing, 21(3), 124-131.

Williams, S. A. (1997). The relationship of patients' perceptions of holistic. nursing caring to satisfaction with nursing care Journal of Nursing Care Quality , 11 (5), 15-29.

Wong, J. & Wong, S. (1985). A randomized controlled trial of a new approach to preoperative teaching and patient compliance. International Journal of Nursing Studies, 22(2), 105-115.

Yarnold, B. D. (1999). Hip fracture: caring for a fragile population. American Journal of Nursing, 99(2), 36-40.

Young, Y., et al. (1997). A Longitudinal examination of functional recovery among older people with subcapital hip fractures. Journal of the American Geriatrics Society, 45, 288-294.

Young, Y., German, P., Brant, L., Kenzora, J., & Magaziner, J. (1996). The predictors of surgical procedure and the effects on functional recovery in elderly with subcapital fractures. Journals of Gerontology-Series A: Biological Sciences & Medical Sciences, 51 (4), M158-M164.

Young, Y., Myers, H., & Provenzano, G. (2001). Factors associated with time to first hip fracture. Journal of Aging and Health, 13(4), 511-526.

Zahr, L. K., William, S. G., & El-Hadad, A. (1991). Patient satisfaction with nursing care in Alexandria, Egypt. Internal Journal of Nursing Studies, 28(4), 337-342.

Zuckerman, J. D. (1996). Hip fracture. The New England Journal of Medicine, 334 (23), 1519-1525.

Zuckerman, J. D., Sakales, S. R., Fabian, D. R., & Frankel, V. H. (1992). Hip fractures in geriatric patients results of an interdisciplinary hospital care program. Clinical Orthopaedic and Related Research, 274, 213-225.

จินนะรัตน์ ศรีภัทรภิญโญ. (2540). (Jinnarat Srepatarapinyo, B.E. 2540). ผลของการสอนและการฝึกทักษะแก่ผู้ดูแลผู้ป่วยโรคหลอดเลือดสมองต่อความสามารถในการดูแลผู้ป่วยและภาวะสุขภาพของผู้ป่วย. วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลผู้ใหญ่ บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

จันทร์เพ็ญ แซ่หวุ่น. (2537). (Chanpen Saewun, B.E. 2537). ปัจจัยคัดสรรที่ทำนายความเหนื่อยหน่ายของญาติผู้ดูแลผู้ป่วยโรคหลอดเลือดสมอง. วิทยานิพนธ์ปริญญานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลผู้ใหญ่ บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

ชวลี แย้มวงษ์. (2538). (Chavalee Yamvong, B.E. 2538). ผลของการประยุกต์ใช้ระบบการพยาบาลตามทฤษฎีของโอเร็ม ต่อความพึงพอใจของผู้ป่วย และญาติต่อการพยาบาลที่ได้รับ และความสามารถในการกระทำกิจวัตรประจำวันของผู้ป่วยสูงอายุที่เข้ารับการรักษาในโรงพยาบาล. วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลผู้ใหญ่ บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

ชนิตา มณีวรรณ, เมรีย์ สุดจินดา, สมทรง จุไรทัศนีย์ และวรณัน นิลนัครา. (2535). (Chanita Maneewan, et al., B.E. 2535). ปัญหาและความต้องการของผู้ป่วยโรคเรื้อรังและผู้ดูแลที่บ้าน. รายงานวิจัยคณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี.

ชูชื่น ชีวพูนผล. (2541). (Chuchuen Cheewapoonphon, B.E. 2541). อิทธิพลของภาวะสุขภาพของผู้ป่วย ความเข้มแข็งในการมองโลกของญาติผู้ดูแล และความรู้สึกเป็นภาระในการดูแล ต่อการปรับตัวของญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลาม. วิทยานิพนธ์ปริญญาพยาบาลศาสตรดุษฎีบัณฑิต บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

ทัศนีย์ อนันตพันธุ์พงศ์. (2538). (Tussanee Arnantapunpong, B.E. 2538). ผลของการส่งเสริมญาติให้มีส่วนร่วมในการดูแลผู้ป่วยสูงอายุที่เข้ารับการรักษาในโรงพยาบาล ต่อการฟื้นสภาพของผู้ป่วย และความพึงพอใจของญาติต่อการพยาบาล. วิทยานิพนธ์ปริญญา

พยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลผู้ใหญ่ บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

ปิยวรรณ ประคุณคงชัย. (2533). (Piyawan Prakunkongchai, B.E. 2533). ความพึงพอใจของผู้ป่วยนอกต่อบริการของรัฐ: ศึกษากรณีจังหวัดนครสวรรค์. วิทยานิพนธ์ปริญญาสังคมศาสตรมหาบัณฑิต, สาขาวิจัยประชากรและสังคม บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

พรจันทร์ พงษ์พรหม. (2534). (Pornchan Pongprorn, B.E. 2534). ผลของการส่งเสริมให้ผู้ป่วยมีส่วนร่วมในการดูแลตนเอง ต่อการฟื้นสภาพภายหลังผ่าตัดช่องท้อง และความพึงพอใจในการพยาบาลที่ได้รับ. วิทยานิพนธ์ปริญญาวิทยาศาสตรมหาบัณฑิต, สาขาพยาบาลศาสตร์ บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

พรชัย จุลเมตต์. (2540). (Pornchai Jullamate, B.E. 2540). ผลของการสนับสนุนด้านข้อมูล และด้านอารมณ์ ต่อภาระของผู้ดูแลผู้ป่วยโรคหลอดเลือดสมอง. วิทยานิพนธ์ปริญญาพยาบาลศาสตร์มหาบัณฑิต, สาขาการพยาบาลอายุรศาสตร์และศัลยศาสตร์ บัณฑิตวิทยาลัย มหาวิทยาลัยเชียงใหม่.

เพียงใจ ติรไพรวงศ์. (2540). (Phiangjai Tirapaiwong, B.E. 2540). สัมพันธภาพระหว่างผู้ดูแลกับผู้ป่วยและภาระการดูแลของสมาชิกในครอบครัวผู้ดูแลโรคหลอดเลือดสมอง. วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลอนามัยชุมชน บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

เฟื่องลดา เคนไชยวงศ์. (2539). (Fuanglada Kenchaiwong, B.E. 2539). ความสัมพันธ์ระหว่างการพึ่งพาของผู้ป่วย แรงสนับสนุนทางสังคม และภาระของผู้ดูแลผู้ป่วยโรคหลอดเลือดสมอง. วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลอายุรศาสตร์และศัลยศาสตร์ บัณฑิตวิทยาลัย มหาวิทยาลัยเชียงใหม่.

ยุพาพิน ศิรโพธิ์งาม. (2539). (Yupapin Sirapo-ngam, B.E. 2539). ญาติผู้ดูแลที่บ้าน: แนวคิดและปัญหาในการวิจัย. รามาธิบดีพยาบาลสาร, 2(1), 84-93.

รัมภ์รดา อินทร. (2539). (Pumprada Intorn, B.E. 2539). ผลของการส่งเสริมให้ญาติมีส่วนร่วมในการดูแลผู้ป่วยบาดเจ็บที่ศีรษะต่อการฟื้นสภาพของผู้ป่วยและความพึงพอใจของญาติต่อการพยาบาลที่ได้รับ. วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลผู้ใหญ่ บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

วิภา ดุรงค์พิศิษฏ์กุล. (2525). (Vipa Durungpisitkul, B.E. 2525). ความพึงพอใจของผู้ป่วยนอกต่อบริการของโรงพยาบาลรามาธิบดี. วิทยานิพนธ์ปริญญาสังคมศาสตรมหาบัณฑิต, สาขาสังคมศาสตร์การแพทย์ บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

วิภาวรรณ ชะอุ่ม. (2536). (Wipawan Chaoum, B.E. 2536). ภาระในการดูแล และความผาสุกโดยทั่วไปของญาติผู้ดูแลผู้สูงอายุที่ต้องพึ่งพา. วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลผู้ใหญ่ บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

วิรุฬห์ เหล่าภัทรเกษม. (2529). (Wiroon Lowpatkasame, B.E. 2529). ความรู้พื้นฐานเกี่ยวกับกระดูก. คณะแพทยศาสตร์ มหาวิทยาลัยขอนแก่น.

ศิริรัตน์ สงวนเชื้อ. (2540). (Siriratana Snguanchua, B.E. 2540). ความสัมพันธ์ระหว่างความรู้เกี่ยวกับการดูแลตนเอง ปัจจัยพื้นฐาน กับความพร่องในการดูแลตนเอง ในผู้ป่วยภายหลังผ่าตัดเปลี่ยนข้อสะโพกเทียม. วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลผู้ใหญ่ บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

สมนึก สกุลหงส์โสภณ. (2540). (Somnuk Sakulhongsophon, B.E. 2540). ประสิทธิผลการพยาบาลตามแนวคิดทฤษฎีการปรับตัวของรอย ต่อการลดความเครียดและเพิ่มความสามารถในการปรับตัวของผู้ดูแลผู้ป่วยมะเร็งระยะสุดท้าย. วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาพยาบาลสาธารณสุข บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

สมฤดี สิทธิมงคล. (2541). (Somrudee Sitthimongkol, B.E. 2541). ความเครียด การเผชิญปัญหา และคุณภาพชีวิตของญาติผู้ดูแลผู้สูงอายุที่เจ็บป่วยต้องพึ่งพา. วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลผู้ใหญ่ บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

สายพิณ เกษมกิจวัฒนา. (2536). (Saipin Gasemgitvatana, B.E. 2536). แบบจำลองเชิงสาเหตุของความเครียดในบทบาทของภรรยาผู้ป่วยเรื้อรังในฐานะผู้ดูแล. วิทยานิพนธ์ปริญญาพยาบาลศาสตรดุษฎีบัณฑิต บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

สายพิณ เกษมกิจวัฒนา, วิมลรัตน์ ภู่วราวุฒิพานิช, วัฒนา น้ำเพชร และภัสพร ขำวิชา. (2539). (Saipin Gasemgitvatana, et al., B.E. 2539) แบบจำลองเชิงสาเหตุภาวะสุขภาพของผู้ดูแลผู้ป่วยมะเร็ง. วารสารพยาบาลศาสตร์, 14(2), 76-82.

สิริสุดา ซาวคำเขต. (2541). (Sirisuda Saukhumket, B.E. 2541). การสนับสนุนทางสังคมของครอบครัวกับความเครียดของผู้สูงอายุที่กระดูกสะโพกหัก. วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลผู้สูงอายุ บัณฑิตวิทยาลัย มหาวิทยาลัยเชียงใหม่.

สุทธิชัย จิตะพันธ์กุล. (2542). (Sutthichai Jitapunkul, B.E. 2542). หลักสำคัญของเวชศาสตร์ผู้สูงอายุ. (พิมพ์ครั้งที่ 2). กรุงเทพมหานคร: จุฬาลงกรณ์มหาวิทยาลัย.

สุดธิดา รัตนสมาหาร. (2542). (Sudthida Rattanasamaharm, B.E. 2542). การพัฒนารูปแบบการจัดบริการสุขภาพที่บ้านแก่ผู้ป่วยโรคหลอดเลือดสมอง. วิทยานิพนธ์ปริญญาพยาบาล

ศาสตรมหาบัณฑิต, สาขาการพยาบาลอนามัยชุมชน บัณฑิตวิทยาลัย มหาวิทยาลัยสงขลานครินทร์.

สุมนา แสนมาโนช. (2541). (Sumana Saenmanoch, B.E. 2541). ผลของการส่งเสริมให้ญาติมีส่วนร่วมในการดูแลผู้ป่วยสูงอายุกระดูกสะโพกหักที่ได้รับการผ่าตัดเปลี่ยนข้อสะโพกต่อการฟื้นสภาพหลังผ่าตัด ความวิตกกังวลของญาติ และความพึงพอใจของผู้ป่วยและญาติ. วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลผู้ใหญ่ บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

สุรีรัตน์ ช่วงสวัสดิ์ศักดิ์. (2541). (Surerat Chuangsawasak, B.E. 2541). ความต้องการของญาติในฐานะผู้ดูแลผู้ป่วยโรคหลอดเลือดสมอง. วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลผู้ใหญ่ บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

สุวรรณี มหากายนันท์. (2538). (Suwannee Mahakayanun, B.E. 2538). ผลการประยุกต์ใช้ระบบการพยาบาลของโอเร็ม ต่อความผาสุก ภาวะแทรกซ้อน และจำนวนวันที่อยู่ในโรงพยาบาลในผู้ป่วยสูงอายุ. วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลผู้ใหญ่ บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

อารมณ์ บุญเกิด. (2540). (Arom Boonkerd, B.E. 2540). ประสิทธิผลของการเตรียมก่อนกลับบ้านต่อความสามารถในการปฏิบัติตัวของผู้ป่วยโรคหลอดเลือดสมองและความสามารถในการดูแลผู้ป่วยของญาติผู้ดูแล. วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลสาธารณสุข บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

อรชร มาลาหอม. (2534). (Orachon Malahom, B.E. 2534). ผลของการส่งเสริมให้ผู้ป่วยมีส่วนร่วมในการดูแลตนเอง ต่อการฟื้นสภาพภายหลังผ่าตัดนิ่วในไตและท่อไต และความพึงพอใจในการพยาบาลที่ได้รับ. วิทยานิพนธ์วิทยาศาสตรมหาบัณฑิต, สาขาพยาบาลศาสตร์ มหาวิทยาลัยมหิดล.

อรุณี นาคะพงศ์. (2539). (Arunee Nakaphongse, B.E. 2539). ภาวะทางร่างกาย ภาวะซึมเศร้า การดูแลตนเองด้านโภชนาการ และภาวะโภชนาการของผู้สูงอายุในชุมชน. วิทยานิพนธ์ปริญญาพยาบาลศาสตรมหาบัณฑิต, สาขาการพยาบาลผู้ใหญ่ บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

APPENDIX A

APPENDIX A

คู่มือสำหรับญาติในการให้การดูแลผู้ป่วยสูงอายุกระดูกสะโพกหัก ที่ได้รับการผ่าตัดเปลี่ยนข้อสะโพก

กระดูกสะโพกหักเป็นภาวะที่พบบ่อยในผู้สูงอายุ ส่วนใหญ่มีสาเหตุจากการหกล้ม ร่วมกับภาวะกระดูกพรุน การรักษาที่นิยม คือ การผ่าตัดเปลี่ยนข้อสะโพก ซึ่งพบว่าภายหลังผ่าตัดผู้ป่วยจะมีข้อจำกัดในการเคลื่อนไหวของข้อสะโพก การปฏิบัติกิจวัตรประจำวัน ร่วมกับในวัยสูงอายุ โครงสร้างและการทำงานของอวัยวะต่างๆจะเสื่อมถอยลง ทำให้ผู้ป่วยสูงอายุต้องใช้เวลานานในการฟื้นฟูสภาพ ดังนั้นเพื่อป้องกันภาวะแทรกซ้อนที่อาจจะเกิดขึ้นในระยะหลังผ่าตัด เช่น การติดเชื้อของแผลผ่าตัด การติดเชื้อในระบบทางเดินปัสสาวะ ปอดอักเสบ แผลกดทับ กล้ามเนื้อลีบ ข้อติดแข็ง เป็นต้น การฟื้นฟูสภาพผู้ป่วยหลังผ่าตัดมีความจำเป็นที่จะต้องเริ่มกระทำโดยเร็วและมีความต่อเนื่อง ซึ่งนอกจากการรักษาของแพทย์ การทำกายภาพบำบัด และการให้การดูแลจากพยาบาลแล้ว เพื่อให้ผู้ป่วยฟื้นฟูสภาพหลังผ่าตัด และฟื้นหายจากความเจ็บป่วยได้ดียิ่งขึ้น ญาติจะเป็นบุคคลสำคัญอย่างยิ่ง ที่จะเป็นผู้ให้การดูแลผู้ป่วยอย่างต่อเนื่องเมื่อกลับไปอยู่บ้าน จนกว่าผู้ป่วยจะฟื้นสภาพจากการผ่าตัดอย่างสมบูรณ์ ผู้วิจัยจึงได้จัดทำคู่มือนี้ขึ้นสำหรับญาติ เพื่อเป็นแนวทางในการให้การดูแลผู้ป่วย เมื่อกลับไปอยู่บ้าน ประกอบด้วยเนื้อหาสาระในเรื่องเกี่ยวกับการดูแลผู้ป่วยและการปรับตัวในการดูแลของญาติผู้ดูแลเอง ซึ่งผู้วิจัยได้รวบรวมขึ้นและมีการปรับภาษา เพื่อให้เหมาะสมสำหรับการนำไปใช้สอนญาติผู้ดูแล

ตอนที่ 1. การดูแลผู้ป่วย ประกอบด้วย 5 หัวข้อ ดังนี้

ก. ความรู้ทั่วไปเกี่ยวกับผู้สูงอายุ.....
.....

ข. ความรู้เกี่ยวกับกระดูกสะโพกหักและการรักษาโดยการผ่าตัดเปลี่ยนข้อสะโพก.....

ค. การปฏิบัติตัวเพื่อฟื้นฟูสภาพหลังผ่าตัดเปลี่ยนสะโพก.....
.....

ง. การปฏิบัติเพื่อป้องกันภาวะแทรกซ้อน.....
.....

จ. การปฏิบัติตนตามสภาพของโรคเรื้อรังของผู้ป่วยแต่ละราย ได้แก่ โรคเบาหวาน โรคความดันโลหิตสูง เป็นต้น.....

ตอนที่ 2 การปรับตัวของญาติ

ในสังคมวัฒนธรรมไทยนั้น การดูแลผู้เจ็บป่วยเป็นหน้าที่ความรับผิดชอบของสมาชิกในครอบครัว ในการให้การดูแลผู้ป่วยสูงอายุกระดูกสะโพกหักภายหลังผ่าตัดเปลี่ยนข้อสะโพกเทียม โดยเฉพาะที่บ้านนั้นสมาชิกในครอบครัวจะเป็นสิ่งแวดล้อมที่สำคัญต่อผู้ป่วย โดยเฉพาะสมาชิกที่ทำหน้าที่เป็นผู้ดูแลผู้ป่วย หรือญาติผู้ดูแล เพราะจะมีส่วนช่วยเหลือให้ผู้ป่วยสามารถปรับตัวกับความเจ็บป่วย ตลอดจนช่วยดูแล ฟื้นฟูสภาพผู้ป่วยส่งผลให้การฟื้นหายของผู้ป่วยดียิ่งขึ้น

ดังนั้นเพื่อที่จะทำให้ท่านสามารถให้การดูแลผู้ป่วยได้อย่างมีประสิทธิภาพ อีกทั้งตัวท่านเองมีสุขภาพกายและจิตใจที่ดี ผู้วิจัยจึงได้รวบรวมข้อแนะนำแก่ท่านในการช่วยเหลือท่านในการปรับตัวต่อการดูแลผู้ป่วย โดยประกอบด้วย

ก. กิจกรรมที่ท่านต้องให้การดูแลแก่ผู้ป่วยที่บ้าน.....
.....

ข. การช่วยเหลือผู้ป่วยด้านอารมณ์และจิตใจ.....
.....

ค. การดูแลสุขภาพกายและจิตของญาติผู้ดูแล.....
.....

APPENDIX B

APPENDIX B

ผู้ป่วยรายที่.....

ส่วนที่ 1 **แบบสอบถามข้อมูลส่วนบุคคลของผู้ป่วย**
(Patient's demographic data form)

1. เพศ 1. ชาย 2. หญิง
2. อายุ ..... ปี
3. สถานภาพสมรส 1. โสด 2. คู่ 3. หม้าย 4. หย่า, แยกกันอยู่
4. ศาสนา 1. พุทธ 2. คริสต์ 3. อิสลาม 4. อื่นๆ
5. วุฒิการศึกษา
   1. ไม่ได้เรียนหนังสือ 2. ประถมต้น
   3. ประถมปลาย 4. มัธยมต้น
   5. มัธยมปลาย 6. ประกาศนียบัตรวิชาชีพ หรืออนุปริญญา
   7. ปริญญาตรี หรือสูงกว่าปริญญาตรี
6. อาชีพ
   1. ไม่ได้ทำงาน 2. ข้าราชการบำนาญ
   3. รับจ้าง 4. ทำนา ทำไร่ ทำสวน 5. ธุรกิจส่วนตัว
7. รายได้ต่อเดือน (บาท/เดือน)
   1. น้อยกว่า 5,000 2. มากกว่า 5,000 ขึ้นไป
8. วิธีชำระค่ารักษา
   1. ชำระค่ารักษาเอง 2. ประกันสังคม 3. สังคมสงเคราะห์
   4. เบิกค่ารักษาได้ 5. บัตรประกันสุขภาพถ้วนหน้า
9. จำนวนบุตร 1. ไม่มี 2. มี .....คน
10. ปัญหาการมองเห็น 1. ไม่มี 2. มี
11. ปัญหาการได้ยิน 1. ไม่มี 2. มี
12. ปัญหาการเคี้ยว 1. ไม่มี 2. มี
13. โรคประจำตัวอื่นๆ 1. เบาหวาน 2. ความดันโลหิตสูง
    3. โรคหัวใจ 4. อื่นๆ 5. รวมจำนวนโรค .....โรค
14. ประวัติการหกล้ม 1. ไม่มี หรือ 1 ครั้ง/ปี 2. มี.....ครั้ง/ปี

APPENDIX B

ผู้ป่วยรายที่.....

ส่วนที่ 2 **แบบบันทึกข้อมูลความเจ็บป่วยและการรักษา**
(Patient's clinical data form)

ชื่อ .....อายุ ....H.N. .....
ที่อยู่ตามเวชระเบียน.....เบอร์โทรศัพท์ .....
ที่อยู่ที่ติดต่อได้ ..... เบอร์โทรศัพท์ .....
ชื่อญาติ .... เป็น.....กับผู้ป่วย
สถานที่ทำงาน ..... เบอร์โทรศัพท์ .....
วันที่เข้ารับการรักษาในโรงพยาบาล .....วันที่รับไว้ในความดูแล.....
อาการสำคัญก่อนมาโรงพยาบาล.....
.....
สาเหตุของการเกิดข้อสะโพกหัก.....
Type of fracture ☐ Intertrochanteric Fx. ☐ Fx. Neck of femur ☐ (Rt.) ☐ (Lt.)

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Follow up **ครั้งที่1** วันที่.....P.O. Day.....ผลการตรวจ.....
.....

ครั้งที่ 2 วันที่.....P.O. Day..... ผลการตรวจ.....
.....

LAB (Alb., U/A, U/C, CBC,ect.)

APPENDIX B

ผู้ป่วยรายที่.....

ส่วนที่ 3 แบบสอบถามข้อมูลส่วนบุคคลของญาติ
(Caregiver's demographic data form)

1. เพศ 1. ชาย 2. หญิง
2. อายุ .....ปี
3. เกี่ยวข้องกับผู้ป่วยเป็น
   1. บุตร 2. สามี/ภรรยา
   3. พี่, น้อง 4. หลาน 5. อื่นๆ ระบุ.....
4. สถานภาพสมรส 1. โสด 2. คู่ 3. ม่าย 4. หย่า 5. แยก
5. ศาสนา 1. พุทธ 2. คริสต์ 3. อิสลาม 4. อื่นๆ
6. วุฒิการศึกษา
   1. ไม่ได้เรียนหนังสือ 2. ประถมต้น
   3. ประถมปลาย 4. มัธยมต้น
   5. มัธยมปลาย 6. ประกาศนียบัตรวิชาชีพ หรืออนุปริญญา
   7. ปริญญาตรี หรือสูงกว่าปริญญาตรี
7. อาชีพ
   1. ไม่ได้ทำงาน 2. รับราชการ 3. รัฐวิสาหกิจ
   4. เกษตรกรรม 5. ธุรกิจส่วนตัว 6. รับจ้าง
8. รายได้ (บาท/เดือน)
   1. น้อยกว่า หรือเท่ากับ 5,000 2. 5,001-10,000
   3. มากกว่า 10,000 ขึ้นไป
9. รายได้ครอบครัว (บาท/เดือน)
   1. น้อยกว่าหรือเท่ากับ 20,000 2. มากกว่า 20,000 ขึ้นไป
10. โรคประจำตัว
    1. ไม่มี 2. มี โรค(ระบุ) .....
11. มีผู้ช่วยในการให้การดูแลผู้ป่วยที่บ้าน
    1. ไม่มี 2. มี

APPENDIX C

APPENDIX C

ผู้ป่วยรายที่.....

แบบทดสอบหมวดหมู่
(The Set Test)

สี	1.	**สัตว์**	1. .....
	2.		2. .....
	3.		3. .....
	4.		4. .....
	5.		5. .....
	6.		6. .....
	7.		7. .....
	8.		8. .....
	9.		9. .....
	10.		10. .....
คะแนน	.....	คะแนน	.....
ผลไม้	1.	**จังหวัด**	1. .....
	2.		2. .....
	3.		3. .....
	4.		4. .....
	5.		5. .....
	6.		6. .....
	7.		7. .....
	8.		8. .....
	9.		9. .....
	10.		10. .....
คะแนน	.....	คะแนน	.....

คะแนนรวม.....คะแนน

APPENDIX D

APPENDIX D

ผู้ป่วยรายที่.....

แบบวัดความสามารถในการปฏิบัติกิจวัตรประจำวันของผู้สูงอายุ
(The Barthel Index)

1. การรับประทานอาหาร
   - 0 ไม่สามารถรับประทานอาหารได้เอง ต้องป้อนอาหารให้ หรือรับประทานอาหารทางสายยาง
   - 2 ต้องมีผู้คอยดูแลช่วยเหลือในการเตรียมอาหาร เช่น ช่วยตัดหรือหั่นอาหาร
   - 4 ช่วยตัวเองได้ เมื่อเตรียมอาหารวางไว้ให้

2. การเคลื่อนย้าย
   - 0 ไม่สามารถเคลื่อนย้ายได้ และนั่งทรงตัวไม่ได้
   - 2 ต้องมีผู้ช่วยเหลือ 1-2 คน ในการเคลื่อนย้าย นั่งทรงตัวได้
   - 4 เคลื่อนย้ายได้โดยมีผู้ช่วยเหลือ 1 คน คอยช่วยพยุง หรือชี้แนะ
   - 6 สามารถลุกจากเตียง หรือเคลื่อนย้ายมาลงเก้าอี้เข็น และสามารถล็อคล้อเก้าอี้เข็นได้

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10. การควบคุมการถ่ายปัสสาวะ
    - 0 กลั้นไม่ได้ ถ่ายปัสสาวะกระปริบกระปรอย
    - 2 กลั้นปัสสาวะไม่ได้ ประมาณวันละ 1 ครั้ง
    - 4 กลั้นได้ ไม่มีปัสสาวะกระปริบกระปรอย

APPENDIX E

APPENDIX E

แบบประเมินความปวดด้วยการเปรียบเทียบกับเส้นตรง
(Pain Visual Analog Scale)

ผู้ป่วยรายที่ .....

คำชี้แจง เส้นตรงนี้ใช้วัดความรู้สึกปวดบริเวณสะโพกข้างที่ผ่าตัดของท่าน ว่าท่านรู้สึกปวดมากน้อยเพียงใด เส้นตรงนี้เริ่มต้นจากด้านซ้ายมือของท่าน ณ. จุดเริ่มต้นคือ 0 เป็นจุดที่ท่านไม่รู้สึกปวดเลย ความปวดจะค่อยๆเพิ่มมากขึ้นถึงปลายสุดด้านขวามือคือ 10 ณ. ตำแหน่งนี้ เป็นจุดที่ท่านรู้สึกปวดมากที่สุด

ให้ท่านคิดถึงความปวดบริเวณสะโพกข้างที่ผ่าตัดขณะเคลื่อนไหวตลอดวันที่ผ่านมา และขีดเครื่องหมายกากบาท (X) ลงบนเส้นตรง ณ. ตำแหน่งที่ท่านคิดว่าตรงกับระดับความปวดตามความรู้สึกของท่าน

0 10

ไม่ปวดเลย ปวดมากที่สุด

APPENDIX F

APPENDIX F

ผู้ป่วยรายที่.....

แบบบันทึกการเกิดภาวะแทรกซ้อน

ชนิดและอาการ	ก่อนจำหน่าย	หลังผ่าตัด				
		สัปดาห์ที่ 2	สัปดาห์ที่ 3	สัปดาห์ที่ 4	สัปดาห์ที่ 5	สัปดาห์ที่ 6
<u>ติดเชื้อแผลผ่าตัด</u> พบหนองที่แผล ผลเพาะเชื้อจากแผล แผลบวม แดง ร้อน การวินิจฉัยของแพทย์ <u>ติดเชื้อระบบทางเดินปัสสาวะ</u> . . . . <u>ข้อสะโพกเคลื่อนหลุด</u> . .						

APPENDIX G

APPENDIX G

ผู้ป่วยรายที่.....

แบบวัดความพึงพอใจของผู้ป่วยต่อการพยาบาลที่ได้รับ
(The patient's satisfaction questionnaire)

ข้อความ	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
1. พยาบาล**ไม่**สนใจ เอาใจใส่ท่านเท่าที่ควร					
2. พยาบาลคอยสอดส่องดูแลให้ความช่วยเหลือตามที่ท่านต้องการ					
3. พยาบาล**ไม่**มีความเป็นกันเอง					
4. พยาบาล**ไม่**มีความอดทนในการดูแลท่าน					
5. พยาบาลมุ่งทำงานให้เสร็จมากกว่าที่รับฟังเรื่องของท่าน					
6.....					
7.....					
8.....					
28. ถ้าจำเป็นต้องได้รับการดูแลรักษาพยาบาลอีก ท่านต้องการมารักษาที่โรงพยาบาลแห่งนี้					
รวม					

APPENDIX H

APPENDIX H

ผู้ป่วยรายที่.....

เอกสารชี้แจงข้อมูล/คำแนะนำแก่ผู้เข้าร่วมโครงการ

(Patient Information Sheet)

ชื่อโครงการ ผลของการสอนญาติด้วยโปรแกรมการดูแลผู้ป่วยสูงอายุกระดูกสะโพกหักหลังผ่าตัดเปลี่ยนข้อสะโพก ต่อการปรับตัวในการดูแลของญาติผู้ดูแล และความพึงพอใจของญาติผู้ดูแลต่อการพยาบาลที่ได้รับ

ความเป็นมาของโครงการ

ในปัจจุบันแนวทางการรักษากระดูกสะโพกหักในผู้สูงอายุที่นิยมคือ การผ่าตัดเปลี่ยนข้อสะโพกเพื่อให้ผู้ป่วยสามารถมีการเคลื่อนไหวได้โดยเร็ว แต่พบว่าผู้สูงอายุกระดูกสะโพกหักหลังผ่าตัดเปลี่ยนข้อสะโพกจะมีความสามารถในการปฏิบัติกิจวัตรประจำวันลดลง และอยู่ในภาวะพึ่งพา

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วัตถุประสงค์

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รายละเอียดที่จะปฏิบัติต่อผู้เข้าร่วมโครงการ

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การเก็บข้อมูลเป็นความลับ

ผู้วิจัยจะเก็บข้อมูลเฉพาะเกี่ยวกับผู้ป่วยและญาติผู้ดูแลเป็นความลับ และข้อมูลที่เก็บรวบรวมทั้งหมดจะเปิดเผยเฉพาะในรูปที่เป็นสรุปผลการวิจัยทั้งนี้ด้วยเหตุผลทางวิชาการเท่านั้น

ผู้ป่วยรายที่.....

หนังสือยินยอมโดยได้รับการบอกกล่าวและเต็มใจ

(Informed Consent Form)

ชื่อโครงการ ผลของการสอนญาติด้วยโปรแกรมการดูแลผู้ป่วยผู้สูงอายุกระดูกสะโพกหักหลังผ่าตัดเปลี่ยนข้อสะโพก ต่อการปรับตัวในการดูแลของญาติผู้ดูแล และความพึงพอใจของญาติผู้ดูแลต่อการพยาบาลที่ได้รับ

ชื่อผู้เข้าร่วมโครงการวิจัยนี้ .....

อายุ .....

คำยินยอมของผู้เข้าร่วมโครงวิจัย

ข้าพเจ้า นาย/นาง/นางสาว..... ได้ทราบรายละเอียดของโครงการวิจัยตลอดจนประโยชน์ และข้อเสี่ยงที่จะเกิดขึ้นต่อผู้ยินยอมตนให้ทำวิจัยจากผู้วิจัยแล้วอย่างชัดเจน ไม่มีสิ่งใดปิดบังซ่อนเร้นและยินยอมให้ทำการวิจัยในโครงการที่มีชื่อข้างต้น และข้าพเจ้ารู้ว่าถ้ามีปัญหาหรือข้อสงสัยเกิดขึ้นข้าพเจ้าสามารถสอบถามผู้วิจัยได้ และข้าพเจ้าสามารถไม่เข้าร่วมโครงการวิจัยนี้เมื่อใดก็ได้ โดยไม่มีผลกระทบต่อการรักษาที่ข้าพเจ้าพึงได้รับ นอกจากนี้ผู้วิจัยจะเก็บข้อมูลเฉพาะเกี่ยวกับตัวข้าพเจ้าเป็นความลับและจะเปิดเผยได้เฉพาะในรูปที่เป็นสรุปผลการวิจัย การเปิดเผยข้อมูลเกี่ยวกับตัวข้าพเจ้าต่อหน่วยงานต่าง ๆ ที่เกี่ยวข้อง กระทำได้เฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น

ลงชื่อ .....(ผู้ยินดีเข้าร่วมโครงการวิจัยฯ)

..... (พยาน)

..... (พยาน)

วันที่ .....

คำอธิบายของผู้วิจัย

ข้าพเจ้าได้อธิบายรายละเอียดของโครงการ ตลอดจนประโยชน์ของการวิจัย รวมทั้งข้อเสี่ยงที่อาจจะเกิดขึ้นแก่ผู้ยินยอมตนให้ทำวิจัยทราบแล้วอย่างชัดเจนโดยไม่มีสิ่งใดปิดบังซ่อนเร้น

ลงชื่อ .....(ผู้วิจัย)

วันที่ .....

หมายเหตุ : กรณีผู้ยินยอมตนให้ทำวิจัยไม่สามารถอ่านหนังสือได้ ให้ผู้วิจัยอ่านข้อความในใบยินดีเข้ารวมโครงการวิจัยฯนี้ให้แก่ผู้ยินยอมตนให้ทำวิจัยฟังจนเข้าใจดีแล้ว และให้ผู้ยินยอมตนให้ทำวิจัยลงนามหรือพิมพ์ลายนิ้วหัวแม่มือรับทราบในการให้ความยินยอมดังกล่าวข้างต้นไว้ด้วย

APPENDIX I

APPENDIX I

List of experts for a Home-Based Management Intervention Program (HMIP)

The face validity of HMIP were determined by 4 consulting experts include:

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