EFFECT OF INDIVIDUAL TEACHING ON CAPABILITY FOR DAILY ACTIVITIES AND COMPLICATIONS IN PATIENTS WITH MILD HEAD INJURY

SOPIN SRISOMPOTCH

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…….
Miss Sopin Srisompotch
Candidate

……..
Asst. Prof. Krongdai Unhasuta, Ed.D.
Major-Advisor

……
Assoc. Prof. Saipin Kasemkitwattana, D.N.S.
Co-Advisor

……
Asst. Prof. Usavadee Asdornwised, Ph.D.(Nursing)
Co-Advisor

……..……
Assoc. Prof. Rassmidara Hoonsawat, Ph.D.
Dean
Faculty of Graduate Studies

……..……
Asst. Prof. Orapan Thosingha, D.N.S.
Chair
Master of Nursing Science
Faculty of Nursing

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on
June 17, 2005

……
Miss Sopin Srisompotch
Candidate

……..
Asst. Prof. Krongdai Unhasuta,
Ed. D.
Chair

……..
Mrs. Uraiwan Taerungruang
M.N.S.
Member

……..
Assoc. Prof. Saipin Kasemkitwattana,
D.N.S.
Member

……..
Asst. Prof. Orapan Thosingha,
D.N.S.
Member

.....
Asst. Prof. Usavadee Asdornwised
Ph.D.(Nursing)
Member

……...
Assoc. Prof. Rassmidara Hoonsawat,
Ph.D.
Dean
Faculty of Graduate Studies
Mahidol University

……
Assoc. Prof. Kobkul Phancharoenworakul,
Ph.D.
Dean
Faculty of Nursing
Mahidol University

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Sopin Srisompotch

EFFECT OF INDIVIDUAL TEACHING ON CAPABILITY FOR DAILY ACTIVITIES AND COMPLICATIONS IN PATIENTS WITH MILD HEAD INJURY

SOPIN SRISOMPOTCH 4336757 NSAN/M

M.N.S. (ADULT NURSING)

THESIS ADVISORS : KRONGDAI UNHASUTA, Ed.D.,
SAIPIN KASEMKITWATTANA, D.N.S., USAWADEE ASADORNVISED, Ph.D..

ABSTRACT

This study was quasi-experimental research aiming to investigate the effect of individual teaching on capability for daily activities and complications in patients with mild head injuries. The samples, were 40 male and female patients with mild head injury who were admitted at the 2 general surgical wards of Somdej Phrabuddhalertlar Hospital. The subjects were divided into a control group and experimental group with 20 subjects in each group. The subjects in the control group received the usual nursing care whereas those in the experimental group received the usual nursing care with individual teaching. The research instruments were a demographic questionaires, mild head injury record, and capability of daily living activities assessment tool. Data collection was performed from November 2003 to May 2004. Frequency distribution, percentage, mean, standard deviation, and independent t-test were used to analyze the data.

The results of the study showed that on the discharge day and at one week after discharge the average scores of capability for daily activities of the experimental group after receiving individual teaching were higher than those of the control group ($p<.05$). Moreover, the average scores of complications of patients in the experimental group were lower than the corresponding scores of the control group before the intervention and at one week after discharge ($p<.05$).

These findings suggest that nurses should provide individual teaching for patients with mild head injury added to the usual nursing care in order to quicken the patient's recovery and keep the patient safe from any possible complications.

KEY WORDS : INDIVIDUAL TEACHING / CAPABILITY FOR DAILY ACTIVITIES / COMPLICATIONS / MILD HEAD INJURY

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ผลของการสอนรายบุคคลต่อความสามารถในการปฏิบัติกิจวัตรประจำวันและภาวะแทรกซ้อนในผู้ป่วยบาดเจ็บที่ศีรษะระดับไม่รุนแรง (EFFECT OF INDIVIDUAL TEACHING ON CAPABILITY FOR DAILY ACTIVITIES AND COMPLICATIONS IN PATIENTS WITH MILD HEAD INJURY)

โสพิน ศรีสมโภชน์ 4336757 NSAN/M

พย.ม. (การพยาบาลผู้ใหญ่)

คณะกรรมการควบคุมวิทยานิพนธ์ : กรองได อุณหสูต, กศ.ด. (การอุดมศึกษา),
สายพิณ เกษมกิจวัฒนา, พย.ด., อุษาวดี อัสดรวิเศษ, Ph.D.

บทคัดย่อ

การวิจัยกึ่งทดลองนี้เพื่อศึกษาผลของการสอนรายบุคคลต่อความสามารถในการปฏิบัติกิจวัตรประจำวันและภาวะแทรกซ้อนในผู้ป่วยบาดเจ็บที่ศีรษะระดับไม่รุนแรง กลุ่มตัวอย่างเป็นผู้ป่วยบาดเจ็บที่ศีรษะระดับไม่รุนแรงทั้งเพศชายและหญิงที่เข้ารับการรักษาในหอผู้ป่วยศัลยกรรมชาย ศัลยกรรมหญิง โรงพยาบาลสมเด็จพระพุทธเลิศหล้าจำนวน 40 คนโดยแบ่งเป็นกลุ่มควบคุมและกลุ่มทดลองกลุ่มละ 20 คน กลุ่มควบคุมได้รับการพยาบาลตามปกติ กลุ่มทดลองได้รับการพยาบาลตามแผนการสอนรายบุคคลสำหรับผู้ป่วยบาดเจ็บที่ศีรษะระดับไม่รุนแรง เครื่องมือในการเก็บรวบรวมข้อมูลประกอบด้วย แบบบันทึกข้อมูลส่วนบุคคล แบบบันทึกประวัติการบาดเจ็บที่ศีรษะระดับไม่รุนแรง และแบบประเมินความสามารถในการปฏิบัติตนของผู้ป่วยบาดเจ็บที่ศีรษะระดับไม่รุนแรง เก็บข้อมูลระหว่างเดือน พฤศจิกายน 2546 ถึงเดือน พฤษภาคม 2547 วิเคราะห์ข้อมูลโดยใช้ ค่าร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และการทดสอบค่าที

ผลการศึกษาพบว่า คะแนนเฉลี่ยความสามารถในการปฏิบัติกิจวัตรประจำวันของผู้ป่วยในกลุ่มทดลองสูงกว่ากลุ่มควบคุมในวันจำหน่ายและหนึ่งสัปดาห์หลังจำหน่าย ($P < 0.05$) และผู้ป่วยในกลุ่มทดลองมีคะแนนเฉลี่ยภาวะแทรกซ้อนในวันก่อนการทดลองและหนึ่งสัปดาห์หลังจำหน่ายต่ำกว่ากลุ่มควบคุม ($P < 0.05$)

จากการวิจัยครั้งนี้มีข้อเสนอแนะว่า พยาบาลควรนำการสอนรายบุคคลสำหรับผู้ป่วยบาดเจ็บที่ศีรษะระดับไม่รุนแรงมาใช้เสริมการพยาบาลตามปกติ เพื่อช่วยให้ผู้ป่วยฟื้นหายเร็วขึ้นและปลอดภัยจากภาวะแทรกซ้อน

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CONTENTS

CONTENTS (continued)

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1
INTRODUCTION

Background and Significance of the Study

Mild head injury refers to non-severe head injury in which the patient does not lose consciousness or lose consciousness for a very short time of less than 30 minutes (Franzen, 2000; Goldberg, 2001; Kaufman, 2001; Lewis et al., 1996; Silver, et al., 1992). Patients with mild head injury are well conscious and have spontaneous eye-opening or eye-opening in response to speech. They can follow commands, may be instantly aware of or take very little time to recognize the time, place and the person and they may appear mildly confused (Miller & Jones, 1990; Valadka &Narayan, 1996). The patients may have some remaining impairments such as inappropriate use of language, confused communication, poor body balance, deteriorated memory or altered personality. However, they are able to conduct most daily activities even though they may need help on some activities. The patients can work with the job that is not too hard and they can travel with public transports (Hickey, 1997; Jennett, et al., 1981; Whyte et al., 1998). The incidence of mild head injury is approximately 50 – 80 percent of the overall incidence of head injury (Drake, et al., 2000; Jallo & Narayan, 2000; Puenpathom, 1998; Rattanalert, 2003) and the incidence rate is higher in men (Goldberg, 2001).

Mild head injury induces brain dysfunction, leading to physical, emotional and behavioral impairments, as well as cognitive and psychosocial impairments. Common physical impairments include headache, dizziness, nausea, double vision or blurred vision, low tolerance to intense light and sound, tiredness and insomnia (Evans, 1996; Hayden, 1997; Whyte, et al., 1998). The patients may have transient weakness (Joseph, 1996) or may be present with posttraumatic tremor (Krauss & jankovic, 2002) and seizures (Evan & Wilberger, 1999). For behavioral impairments, patients with mild head injury may show decreased interest in themselves and the environment, apathy and disinterest. They may have decreased response to the stimuli and conduct inappropriate social behavior, including withdrawal behavior (Bohnen & Jolles, 1992;

Brewer & Therrien, 2000; Evans & Wilberger, 1999; Katz &Deluca, 1992). Patients with emotional & behavioral impairments may be present with the impulsivity, restlessness, irritability aggression, disinhibition, depression and anxiety (Davidhizar & Bartlett, 1997; Kaufman, 2001; Puenpathom, 1998). Common cognitive impairments after a mild head injury include memory loss, lack of interest in work and lack of concentration (Brooks et al., 1999; Whyte, et al., 1998). The patients may be present with reduced capability of learning, lack of motivation and creativity, as well as decreased capability of decision-making and problem-solving and they may not incapable of abstract rationalization (Evans, 1996). Psychosocial impairments result from the impact of head injury on mentality. Patients with mild head injury may feel stressed and anxious due to the lack of understanding about causes of problems and about the adaptation to the consequent problems. The stress and anxiety cause poor recovery, leading to poor performance of family and social roles (Goldberg, 2001).

Moreover, mild head injury has impact on economic status of the patients and their families, as the consequent impairments may reduce the patients' capability of working or performing their previous roles. Some patients may not be able to return to preinjury employment and, finally, lose their career and family income (Drake, et al., 2000). As a result, they have to change their lifestyles. It is found that 75 percent of patients with mild head injury cannot return to work within one month after the injury (Dikmen, et al., 1994). A study on employment status at three months after the injury found that 34 percent of patients with mild head injury cannot resume their previous work (Barth, et al., 1983 cited in Goldberg, 2001).Therefore, these patients are financially dependent on other people and become the burden of their family and the society (Kraus, et al., 1994).

A pilot study was conducted by the researcher at the Somdej Phrabuddhalertlar Hospital with four patients with mild head injury on the first day of admission revealed that the patients had symptoms of headache, dizziness, nausea and vomiting, confusion, loss of memory about the event, stress, apathy, fatigue, faltering movement and loss of body balance. These problems may have strong impact on the patients' capability for daily activities and it is important to prevent possible consequent complications (Martin, 1994; Solurch, 1990).

Most cases of head injury are mild head injury and not all patients with mild head injury are admitted into hospitals for close observation (Puenpathom, 1998) because hospitalization is limited to patients seriously need medical treatment. This limitation is due to the nation's socioeconomic situation and the population's health condition. For the same reason, hospitalized patients are usually discharged from the hospitals as soon as they recover (Nuansutthi, 1999). Comparing with patients with head injury of other severity, symptoms monitoring in those with mild head injury are morelikely to be neglected (Gabriel & Turner, 1996; Rattanalert, 2003). If the patients do not have any sign of nervous system dysfunction, they are usually discharged after close observation in the hospitals for 48 hours and the symptoms could be further observed at home (Puenpathom, 1998). However, the patients' families may neglect the patients on account of their normal appearance on the discharge day in addition to the information from hospitals about their safe condition and non-existence of abnormal symptoms plus the permission to return home. The families may not take care of patients with mild injury, unlike what they may do to patients with different levels of head injury, because the patients can get dress, walk, eat and talk to other people as usual (Kay, 1996). The patients, therefore, are often left to take care of themselves. Some families may go to work and leave the patients to stay at home on their own, as they are confident that the patients' condition is nearly normal.

The review of existing specific health education for patients with mild head injury revealed that there is not a formal form for specific patient education. In fact, it is found that a nurse will define health education for patients as to give knowledge of health informal form. Nurses always teach patients in the form of narration which is pervaded during they perform nursing care for the patients. The teaching which has unplanned, health educator and patient don't prepare themselves to be ready for teaching, has no objective specification and has not content, method, clear evaluation and has no record in nursing form.(Panutatt, cited in Nukthat, 1997). From the researcher's experiences of working in Somdej Phrabuddhalertlar hospital, the majority of patients teaching is permeated during the nurses' perform nursing care for patient more than formal teaching. Continuous care after hospital discharge for patients with mild head injury is not specially assigned to any health professionals. Individual patients' problem and need regarding home care is not properly assessed

and there is not a teaching plan relevant to each patient's problem. The patient education was made on the discharge day and the nursing activities include teaching patients and families about general self-care such as observing abnormal symptoms, taking oral medications, and attending scheduled visits. Although the teaching may enhance patients' knowledge of self-care, the patients' specific knowledge is not evaluated afterward. Most patients are discharged from the hospitals with cognitive impairment at certain levels thus they are likely to have difficulties in performing daily living activities (Miller, 1989). Some patients may be confronted with various problems and cannot effectively solve the problems; finally, they may need readmission.

The review of studies individual teaching on patients with mild head injury in Thailand did not find a study directly conducted on patients with mild head injury. The researcher of this study, therefore, is interested in examining the effect of individual teaching on patients with mild head injury The teaching plan in this study was the process consisting of assessment of problems, planning, implementation and evaluation of the teaching plan. It aimed to enhance patients' knowledge, understanding, skill and cognition through the experiences gained from practicing; as a result, the patients would learn and could apply their specific knowledge to practice after hospital discharge.

The teaching plan developed for this study emphasized patients' capability for daily activities, including the assessment and management of possible complications of head injury such as postconcussion symptoms and seizure that was suitable for each patient. The patients had opportunities to ask and to practice until they could perform the activities correctly. The individual teaching also aimed to promote patients' interest and to raise their self-esteem in performing self-care at home continuously with regular evaluation. It should be highly beneficial for the enhancement of patients' capability for daily activities and for the reduction of risk from complications thus helping the patients to live their life with full potential and not being the burden for their families. Finally, the patients would live a normal life in the society. This is relevant to the strategy for the development of holistic health stated in the 9th National Health Development Plan, which underlines the development of individuals and community potentiality for health development as a whole (Wongpiromsant &

Dejkong cited in Juengsatiensap and Sae-Lim, Eds., 2002).

Conceptual framework

Mild head injury induces brain dysfunction, leading to physical, emotional and behavioral impairments, as well as cognitive and psychosocial impairments. The consequent impairments may reduce the patient capability for daily activities and incapability of management the complications. The patients may have impairments in movement and postural change, self-care impairments, communication impairments and complications which comprising postconcussion syndrome and seizure. Thus, these patients need the specific knowledge, which have to tailored to suit individual need for each patient. The individual teaching plan to prepare patients with mild head injury for hospital discharge. The process consisted of assessment of individual problems and needs for continuous care, planning, implementation and evaluation. The assessment of individual problems and needs involved the assessment regarding patients' capability of daily living activities and complications after mild head injury. In planning, the aim of making a plan was to enhance patients' capability for daily activities and for complications management through the activities planned for each problem. The teaching plan was then implemented. With teaching and demonstrating technique, nurses would help the patients practicing muscular exercise, daily activities performance, communication skills of both verbal and body language techniques, muscle relaxation and complication assessment. The patients also learned how to manage complications by practicing from a handbook specifically prepared for them. The patients' family advocate and promote the patients to be able to practice daily activities and manage of complications continuously advocate and to promote the patients to be able to have daily activities and the management of complications. With these activities, the patients would subsequently have increased muscular strength, body balance whilst changing position, increased confidence in doing daily activities, precise communication, decreased distress and anxiety, decreased risk of accident and the ability to express feelings. The individual teaching was evaluated from patients' performance, judging from their achieving of the goal of each activity in either aspect of capability for daily activities and complication management. If the goal was not yet achieved, the problem would be reassessed; the diagnosis or the

activities might be changed. It was expected that the individual teaching would enable patients with mild head injury in performing daily activities independently. The activities include moving and changing position, taking self-care, communicating, managing postconcussion syndrome such as headache, dizziness, confusion, fatigue, blurred vision, irritability, aggression, insomnia and forgetfulness; finally, the patients would be safe from any possible complication.

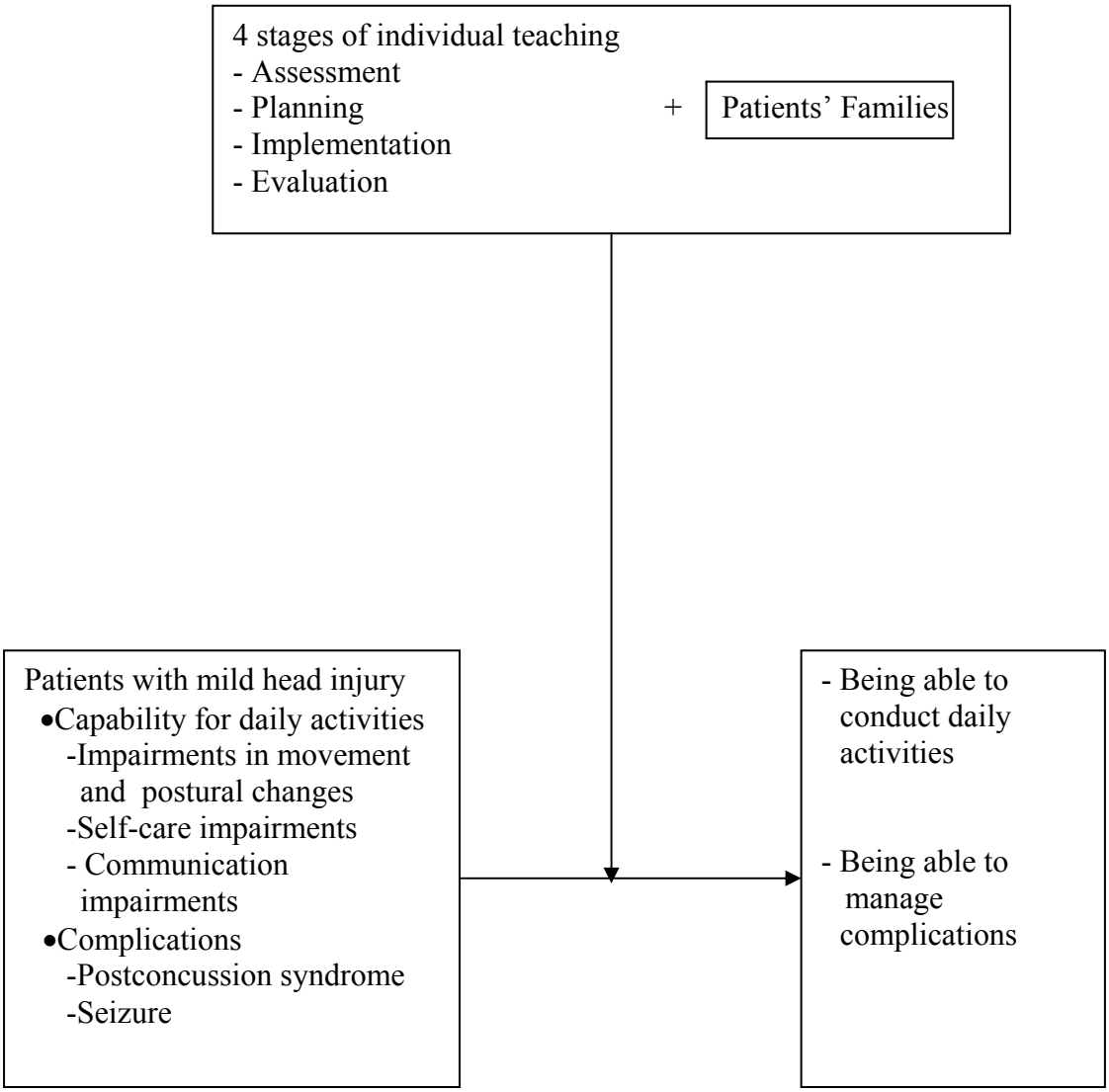


Figure 1: Conceptual framework

Research Questions

What were the differences of the capability for daily activities and in complications between patients with mild head injury who received individual teaching and those receiving usual nursing care?

Purposes of the Study

The aim of this study is to compare the capability for daily activities and the complications in patients with mild head injury between the patients receiving individual teaching and those receiving usual care for hospital discharge.

Hypothesis of the Study

1. Mean score of the capability for daily activities of the experimental group is higher than the score of the control group.

2. Mean score of the complications in the experimental group is lower than that of the control group.

Scope of the Study

This research was a study of the effect of individual teaching on capability for daily activities and complications in male and female patients with mild head injury who were admitted into 2 general surgical wards of Somdej Phrabuddhalertlar Hospital, Samut Songkram Province, during November, 2003 to May, 2004.

Definition of terms

1. **Individual teaching for patients with mild head injury** means activities perform by the investigator in teaching an individual patient with mild head injury related to the patient's movement and changing position, self-care, and communication, in addition to the management of complications i.e. postconcussion syndrome and seizure and evaluation of outcome. The researcher works as the educator of the program. The individual teaching plan and the practicing accordingly were relevant to the specific

problems of each patient with the teaching of muscle exercise, daily activities performance, communication skills, muscle relaxation, assessment and management of complications,

2. Usual nursing care refers to usual nursing activities delivered to the patients before they were discharged from the hospital. The pre-discharge nursing care includes teaching the patients about medications-taking and about observation of abnormal symptoms such as having headache, being drowsy, nausea and vomiting, and blurred vision, as well as wound care and follow-up appointment. Nurses or any members of the health care team usually deliver usual pre-discharge without specification concerning the health professionals, the specific teaching program including the details and time of teaching.

3. Capability for daily activities refers to the patient's level of capability in performing activities, which are divided into three aspects involving body movement and postural changes, self-care, and communication. This research assessed patients' capability for daily activities with an assessment form for evaluation capability for daily activities in patients with mild head injury created by the researcher.

4. **Complications in patients with mild head injury** refer to the abnormalities or pathological symptoms after having mild head injury, comprising postconcussion syndrome and seizure. The postconcussion syndrome comprises symptoms including headache, dizziness, tiredness, blurred vision, irritability, aggression, insomnia, and forgetfulness; seizure symptoms include staring with no response to inquiries, fearfulness, extremely excited, and bizarre behavior such as pulling cloths. These complications were assessed with an assessment form for evaluating complications in patients with mild head injury created by the researcher.

5. Patients with mild head injury refer to patients having head injury at a mild level from traffic accident, falls, assault, sport, gunshot, or contact with sharp objects. The patient does not lose consciousness or lose consciousness for a very short time of less than 30 minutes. Patients with mild head injury are well conscious and have spontaneous eye-opening or eye-opening in response to speech. They can follow commands, may be instantly aware of or take very little time to recognize the time, place and the person and they may appear mildly confused. The patients may have some remaining impairments such as inappropriate use of language, confused

communication, poor body balance, deteriorated memory or altered personality. However, they are able to conduct most daily activities even though they may need help for some activities. The patients can work with the job that is not too hard and they can travel with public transports.

6. Family caregiver for patients with mild head injury refer to persons in the patients' families who have principle role to advocate and to promote the patients to be able to have daily activities and manage complications.

Expected outcomes and benefits

The results of this study of effect of individual teaching on capability for daily activities and complications in patients with mild head injury could be applied as guidelines for the development and improvement of the efficacy of nursing care for patients with mild head injury, especially the patients with limitations or impairments in performing daily activities. These patients also will be satisfied with the individual teaching program. They will perform daily living activities appropriately. Also, this research could used as a guideline for further study for the development of nursing care for patients with head injury.

CHAPTER 2
LITERATURE REVIEW

The review of literature for the study of the effect of individual teaching on capability for daily activities and complications in patients with mild head injury is presented in the following order:

1. Patients with head injury
    - 1.1 Patients with mild head injury (GCS 13-15)
    - 1.2 Impact of mild head injury on the patients
2. Concept of patients education
3. Individual teaching for patients with mild head injury
4. Instruction plan for patients with mild head injury
    - 4.1 Promotion of capability for daily activities
    - 4.2 Assessment and management of complications
        - 4.2.1 Postconcussion syndrome
        - 4.2.2 Epilepsy

1. Patients with head injury

1.1 Patients with mild head injury (GCS 13-15)

Head injury is the injury from forced impact on the head, resulting in injury on the skin, the skull, the brain, and nerves. As a consequence, patients with head injury are present with defects in levels of consciousness, cognitive impairment, physical impairment, and behavioral changes (Elovic & Antoinette, 1996; Franzen, 2000; Hickey, 1997; Smith & Winkle, 1990; Tangamnuay, 1993).

Patients having head injury at non-severe level (GCS 13-15) are patients with mild head injury who do not lose consciousness or those who are unconscious for a short time of less than 30 minutes (Franzen, 2000; Goldberg, 2001; Kaufman, 2001; Lewis, et al., 1996; Silver, et al., 1992). The patients are usually well conscious; have spontaneous eye-opening or eye-opening in response to verbal commands; are able to follow commands; express good recognition of time, place and

person; and give appropriate responses to questions although they may slightly disoriented and confused sometimes (Miller & Jones, 1990; Valadka & Narayan, 1996). The patients may have some disabilities left after the injury, e.g. defects in communication, loss of body steadiness, amnesia, or personality changes. However, they are still able to perform daily activities even though they may need help for some activities. The patients can also do light work and travel to common public places with buses or cars (Hickey, 1997; Jennett, et al., 1981; Whyte, et al., 1998). A study on patients with mild head injury in Thailand, conducted by Khon Kaen Central Hospital, have shown that 53.7 percent of the patients had mild head injury and the mortality and the disability rates were 1.1 and 13.1 percent, respectively (Tansitthipaet, 1998). Such rates reflect the loss of human and monetary resources, as well as increased family and social burdens (Thepahudee & Puanpathom, 1999).

Mild head injury can be assessed from the level of consciousness after the injury, which differs in each patient. The common measurement of level of consciousness or the categorization of head injury severity is the Glasgow Coma Scale (GCS) (Elovic & Antoinette, 1996; Fischer & Mathieson, 2001; Frawley, 1990; Hickey, 1997). The GCS measures the total outcome of behavioral responses to various stimuli. The responses range from none to normal response with the total GCS score ranging from 3-15. The score is given from the assessment of eye opening, best motor response, and best verbal response. The scores for eye opening range from 1-4, best motor response from 1-6, and best verbal response from 1-5. Patients with mild head injury are usually present with GCS score 13-15: the eye-opening score is mostly between 3-4, best motor response score 6, and best verbal response between 4-5 (Alexander, 1995; Davidhizar & Bartlett, 1997).

Mild head injury usually leaves some defects in the patients. The defects can be predicted from the assessment of physical, social, and financial dependency with the Glasgow Outcome Scale (GOS) (Hickey, 1997; Jennett & Bond, 1975; Johnston, et al., 1996; Kaufman, 2001; Wilson, et al., 1998). Patients with mild head injury are usually met with criteria for level 4, out of the following 5 levels of GOS categorization (Teasdale, 1995; Rattanalert, 2003):

GOS = 1 = Death: refers to the patients who die from brain accident or from other complications, including those who die from other related causes after

they have gained consciousness.

GOS = 2 = Persistent vegetative: refers to the patients who do not response to stimuli, do not speak, have spontaneous eye-opening and eye-closing, and still have sleeping cycle.

GOS = 3 = Severe disability (conscious but disabled): refers to the patients with good level of consciousness who are dependent on other people in performing daily activities due to physical and/or mental disability.

GOS = 4 = Moderate disability (disabled but independent): refers to the patients who have some disabilities but are able to help themselves in daily activities. These patients can travel in public and can work in appropriate environment although they may need help from other people in doing some activities.

GOS = 5 = Good recovery refers to the patients who can live a normal life and can work despite traces of disability.

In the acute phase of head injury, the patient's recovery is associated with the GCS score. The patients with GOS 1-3 tend to have poor recovery, where as those with GOS 4-5 are likely to have good recovery (Cowen, et al., 1995; Johnston, et al., 1996; Rattanalert, 2003). The Institute of Neurology conducted a study on the outcome of rehabilitation in patients with head injury by using GOS to measure the outcome in addition to the collection of related information comprising GCS, duration from the injury incident to the beginning of the rehabilitation, length of rehabilitation, length of hospital stay, age, and gender. The comparison of data on admission with the data at the beginning of rehabilitation show that the GCS higher than 10 at the beginning of the rehabilitation has significant correlation with good outcome of rehabilitation, with predetermined GOS for good rehabilitation at 4 and 5 ($p = 0.001$, Fisher's exact test). Moreover, each increasing level of GCS at the beginning of the rehabilitation contributed to 3.7-time increasing chance of good outcome of rehabilitation (adjust O.R 3.7, 95% CI 1.4-10.2) (Tongpipat, 1996). Therefore, the GCS at the beginning of rehabilitation can predict the outcome of rehabilitation in patients with mild head injury. It was also found that early rehabilitation with appropriate and continuous practice led to the reduction in the length of hospital stay.

1.2 Impact of mild head injury on the patients

Mild head injury is an immediate event, causing life crisis and illness

that changes the patients' lives in every aspect. In addition to the impact on the patients, mild head injury also has impact on the patients' family and the society. The subsequent impairment either in physical, behavioral, emotional, cognitive, or psychosocial aspects cause difficulties in the patients' usual functioning. Moreover, the patients having disability or severe disability have to be dependent on other people in their daily living, work, and social functioning. Approximately 50 percent of patients with mild head injury are at risk of postconcussion syndrome, and this syndrome may exist for three months, or longer in some patients (Davis, 2002; Evans, 1996; Williams & Hopper, 1999). In a comparative study of postconcussion syndrome prior to the head injury, at one week after the injury, and at three weeks after the injury conducted in three groups of patients with head injury comprising an experimental group – patients with mild head injury, a trauma-patient control group – trauma patients with no presence of head injury, and the general-people control group, it is found that the most common symptom at the first week of the injury are headache, dizziness, and double vision. These symptoms exist over the period of three months after injury thus the patients have difficulties in working with the task that requires cognitive ability (Davis, 2002: 609). Therefore, the consequences of mild head injury have strong impact on the patients' life (Thornhill, et al., 2000), as detailed below.

1.2.1 Physical impairment

The most common physical impairment is headache, which is found in approximately 30-90 percent of patients with mild head injury (Evans & Wilberger, 1999; Martelli, et al., 1999; Zasler, 1996) and about 85 percent out of these is the tension-type or muscle contraction headache (Evans, 1992; Goldberg, 2001). Dizziness/ vertigo is found in 53 percent within the first week after the injury. The patients may also have nausea, vomiting, loss of hearing, buzzing in the ear due to labyrinth concussion, diplopia or double vision, and blurred vision on account of the injury on the 3rd, 4th, and 6th cranial nerves (Evans, 1996; Zasler, 1996). They also appear to be sensitive to light and sound. It has been shown that patients with mild head injury have decreased threshold to the stimulation with the sound intensity higher than 71 decibel and light intensity higher than 600 lux, which are the normal intensities that general people can tolerate (Bohnen, et al., 1991). At 3-6 days after the injury, the patients may have fatigue and insomnia. These two symptoms are common

in patients with mild head injury, as 29 percent of the patients report having the symptoms in the fourth week after the injury and 23 percent report the occurrence of these symptoms in the sixth week after the injury (Minderhoud, et al., cited in Evans, 1992). In addition, the patients may have transient weakness (Joseph, 1996) thus losing body balance and having ataxia (Lundy-Ekman, 1998; Hayden, 1997). Posttraumatic tremor, either postural or intention tremor, may appear in the head, hands, legs, body and the tongue immediately after the head injury until four weeks later (Evans, 1992; Krauss & Jankovic, 2002). Epileptic symptom has been found in approximately five percent of the patients and the symptom may occur within 1- 6 months after the injury or may be found in the first week of mild head injury (Boss, 1994; Dacey, et al., 1993; Evans & Wilberger, 1999; Lewis, et al., 1996). The incidence rate of epilepsy is 12 percent of patients from all age groups who had amnesia for less than 24 hour (Zasler, 1996). If epilepsy is not properly treated, it may lead to brain congestion or brain anoxia due to insufficient oxygenation because the patients cannot fully breathe during an epileptic attack whilst the brain needs more energy (Ahearn-Spera, 1996).

1.2.2 Behavioral / Emotional impairment

The common behavioral impairment in patients with mild head injury includes decreased self-interest, drowsiness, apathy, decreased response to stimuli, decreased interest in social manners, inappropriate social behavior, social isolation, withdrawal, impulsivity, sexual disturbances, irritability, personality change, agitation, and insomnia (Bohnen & Jolles, 1992; Brewer & Therrien, 2000; Evans & Wilberger, 1999; Katz & Deluca, 1992). For emotional changes, the patients may express loss of emotional control and become easily angry, irritable, depressed, and anxious. The two-month measurement of cognition and neurological behavior in elderly patients with mild head injury, in comparison with those with moderate head injury and a control group showed that patients with head injury in both group exhibited significantly greater depression and anxiety /somatic concern than those in the control group (Goldstein, et al, 2001). Patients with injury in the frontal lobe, especially on the left side, always have depression (Andrasik & Wincze, 1994; Friedman, 1999); and the depression is more common in males than in females (Burton & Volpe, 1988 cited in Andrasik & Wincze, 1994). The patients who already have psychological disorders,

such as sexual deviance or stress, long before having the injury will be more affected by the psychological impact (Raskin, 1997 cited in Goldberg, 2001).

1.2.3 Cognitive impairment

Cognitive impairment in patients with mild head injury can be recovered in three months (Davis, 2000; Mittenberg & Strauman, 2000). The study of recovery and rehabilitation after head injury in 74 patients with mild to moderate head injury examined the patients' performance of activities and functioning in psychoneurological and social aspects at three months and six months after the injury, using telephone interview method and the patients' utilization of service at the rehabilitation unit. It found that about half of the patients had cognitive impairment at three moths after the injury and more than one-third of the patients still had the impairments at six months. Moreover, 60.5 percent of these patients were still unemployed at six months after the injury (Dombovy & Olek, 1997). The telephone interview also revealed that after three months of the injury the cognitive impairment in these patients led to psychological disorders, which was found in females more than males, especially in the patients older than 40 years of age (Evans & Wilberger, 1999). Furthermore, a number of studies also found that advancing age and repeated injury contribute to the increase in cognitive impairment. The impairment affects patients' capability in various aspects, e.g. memory, attention, concentration, thought, perception, intelligence, problem-solving, and decision-making (Evans, 1992; Satz, 1993 cited in Mittenberg & Strauman, 2000). A study on executive function in patients with mild head injury, using the Control Oral Word Association Test (COWAT), has shown low COWAT score in a large number of patients. This result reflects the existence of injury in the frontal lobe (Brooks, et al., 1999). Previous studies found that patients with mild head injury also experienced changes in their memories, as they had retrograde amnesia (Evans, 1992; McMillan, 1997; Roth & Farls, 2000). After having mild head injury for four weeks, 19-20 percent of the patients expressed symptoms of memory deficits and forgetfulness (Evans & Wilberger, 1999; Minderhoud, et al., 1980 cited in Evans, 1992), as well as the decrease in their ability to memorize new information (Franzen, 2000; Williams & Hopper, 1999). A study of the correlation between intellectual level and memory in patients with mild head injury has found significant more deficits in memory than in

intellectual level (P<0.001) (Hall & Bornstein, 1991). For attention and concentration defects, it has been found that the patients have injury in brainstem or the prefrontal area (Davis, 2000). Cognitive impairment form mild head injury, therefore, have effect on the patient's attention; the patients do not have sufficient attention on a subject to be concentrated, do not take care of their personal hygiene, do not care about their future, and are not interested in the environment. They lack concentration in performing activities, have decreased tolerance to things, and cannot concentrate while reading. Their executive function is also impaired, as they cannot develop abstract thoughts and their ability to learn new subjects is lessened. The patients cannot perceive all information, lack creative thought for work planning and for following-up to achieve the work goal, and have impairment in solving the problems of everyday living (Ruangtrakul, 2001).

1.2.4 Psychosocial impairment

Psychological impact of mild head injury includes posttraumatic stress and anxiety on account of the pathology in the temporal limbic and the basal forebrain, which regulate emotional expression (Silver, et al., 1992). A study on concurrent psychosocial problems in 80 patients with mild head injury has shown that the patients who did not have psychotic symptoms were well recovered from psychosocial impairment (Moony & Speed, 2001). Most psychotic symptoms that appeared later, such as depression and anxiety, have effect on poor recovery from psychosocial impairment. Cognitive impairment is associated with the patients' role in aspects of occupation and behavior. The patients will have less chance to be employed, suffer permanent unemployment, lose work efficiency, and are unable to accomplish the task under their responsibilities. Their work has more errors and mistakes and, in some cases, their safety may be at risk; thus the patients may need to change their occupation (Andrasik & Wincze, 1994; Hayden, 1997; O' Shaughnessy, et al., 1984 cited in Gunsett & Mysiw, 1992; Thornhill et al., 2000; Zasler, 1999). Moreover, the postconcussion syndrome have impacts that affect the patients' role functioning in the family and the society, especially those who were the head of the family previously and were unable to play their role anymore. They will suffer from the lack of self-worth thus feeling frustrated, irritable, and depressed (Andrasik & Wincze, 1994)

1.2.5 Economic impact

The impact of head injury diminishes or even eliminates the patients' ability to work. The patients may not be recovered from the injury and may not be able to get back to their usual work; they cannot take former responsibilities thus losing the job and the family income. As a result, they have to be financially dependent and become the burden of the family and the society. For the cost of hospital treatment, it has been found that the cost for elderly patients with mild head injury is higher than the cost for the younger patients (Kraus, et al., 1994). The condition that needs to be reassessed in elderly patients is the chronic illness existing before the injury, as the illness will lengthen the duration of rehabilitation thus increasing the cost of treatment (Goldberg, 2001). Moreover, the existence of postconcussion syndrome also increases health care expenses (Davis, 2002).

In conclusion, mild head injury has impact on the patients, their families, and the society. The injury causes physical, behavioral, emotional, cognitive, and psychosocial impairment that has effect on the patients' lifestyle, functioning and economic dependency.

2. Concept of patients education

Education is an essential component of health care. Health education is the process, which causes experiences to happen, and make person, family or communities get knowledge, attitude and practice for good health behavior. Health education is the heart of nursing care to response patient's need. (Honan et al., 1988). It's independent role that nurse can do according to her intelligence, knowledge, ability within the professional boundary. Health education is taught before patients are discharged as an individual teaching rather than group teaching. Health education must be the process that has steps and patterns. Patients education is the deliberative process of creating behavioral and cognitive change in patients. Patients education is accomplished by assessing the patient's need and readiness for learning, by initiating activities that are designed to create cognitive and behavioral change in the learner, and by evaluating the results (Redman, 1993). Nurse will perform health education for patients, they have to know well about content including stage of patient teaching.

The patient teaching process is the same as nursing process. It compose of the

steps that are will-arrange system. (Redman, 2000; Whitman et al., 1992)

1. assessment stage of teaching

The step is the first one of teaching which has to gather data and analyze learning, teaching and situation of teaching. That is nurses must collect data to assess or diagnose ability of the learners all the aspects of the physical and phychosocial readiness. Including the consideration medical diagnosis, nursing diagnosis, disease prognosis, treatment ways and attitude toward stimulants of the learners to specify teaching situations specifically. This stage is subdivided in to 4 items as follows:

1.1 Assessment of the learner

The data that should be search for analysis is important data, which comes from diagnosis and illness. The information of patient: gender,age, marital status, educational level, physical condition, mental, medical data, home condition, economical and social status, occupation, religion, the factors that affect on learning attitude, the stimulating force to make learning occurred, the interest, the ability to learn and the need to learn. The searching for right data is for analysis accurate need.

1.2 Assessment of readiness to learn

The readiness of learner is crucial thing to originate the efficiency of learning because patients will be interested in the information to change or correct health problems when they are just ready to learn (Vance, 1992)

1.3 Assessment of teaching situation

The thing that need to be analyzed are resource: man, time, place, money, and material, which are necessary resource to teach patients.

2. Planning stage of teaching

For this stage, it has 3 important components: the specification of goals and objectives, the boundary of learning and the selection of content and teaching method.

2.1 Setting goals and objective

A goal setting is usually a join venture between nurse and patient. The outcome of goal setting are usually more successful if goal is a patient's need and interest; the patient, if at all possible, should set goals for learning and behavioral change(Whitman, et al., 1992). The specification of teaching objective. It's consider

due to the writing of education objective, which has 3 parts: behavior, criteria and condition. If the objective are comprised these, they will be able to utilize for well planing and well evaluation

2.2 The boundary of learning

According to the educational learning –teaching process, learning will be considered on three aspect: cognitive domain, affective domain and psychomotor domain. For cognitive domain, the behaviors are being able to remember, think of, speak repeatedly, analyze, solve problems, calculate, make a decision. For affective domain, the behaviors are feeling , giving the worth far, acceptance, showing needs, seeking for etc. For psychomotor domain, behaviors are being able to walk, lift up, hold, rotate. The content and teaching methods in teaching plan must also respond three aspect of the objectives.

2.3 The selection of content and teaching method

The teaching content, which is chose, should be considered on two sides:

2.3.1 The content according to the professional way. It the thing that nurse make a decision due to her knowledge and expertise including knowledge that is gotten from doctors and other team member in health team. The content will cover the aspect of protection, safety and patient's well being as well as the members in family.

2.3.2 The specific content for an individual. The teaching content for each patients fixed well by patient's data that nurse can analyze need of learning that will specify things, which patient want to be occurred in him / herself and things, that family need patient to learn.

3 Implementation stage of teaching

From the stage of collecting data and planning, it will go to implementation stage of teaching due to the plan. The thing that will be happened on this stage are to utilized content according teaching plan, the implementation due to selected teaching methods including utilization of teaching media. Educator is essential to have to understand content well and to know type of teaching method, prepare and also use teaching media and promote for learning to be occured due to the objective by utilizing many technique.

4 Evaluation stage of teaching

The evaluation stage of teaching is the consideration of the value of one thing or another by judging with standard. The evaluation of teaching is the mechanism to examine the learning, which is result from arrangement of learning experiences and according to objective. Therefore, the evaluation is the one important part in learning-teaching process, which has to be manage and done continuously all the time.

3. Individual teaching for patients with mild head injury

Patients with mild had injury have fairly high disorders in role functioning on account of the physical, behavioral, emotional, cognitive, and psychosocial impairment, including postconcussion syndrome. Furthermore, these disorders vary over a period of time, as the patients may have these problems from 2 weeks to six months and the restrictions from the impairment are the major cause of problems. Although the disorders are not life-threatening, they impair the patients' role functioning, interfere their interpersonal relationship in the family and the community, as well as in the education or work environment, thus affecting the patients' quality of life (Kleppel, et al., 2002). Cognitive impairment mostly affects the patients' performance of activities for daily living (Miller, 1989). However, most patients with mild head injury are discharged from the hospital despite having cognitive impairment. They are not prepared for the discharge and do not receive any information about the available sources that they can seek help from health care professionals. This is probably because there is not a preparation of patients teaching in advance or the patients may be prepared when it is so close to the discharge day that they do not have time to sufficiently develop their self-care potential (Eller & Walker, 1993). An early discharge when the patients' symptoms are not good enough, the lack of preparation and anticipation prior to hospital discharge may restrain the patients' family from the capability for delivering effective care to the patients, as they can not manage problems that may occur after the patients are discharged from the hospital (Eller & Walker, 1993; Sanguinetti & Catanzaro, 1987; Scherer & Timby, 1995). Therefore, it is important for patients and their family to receive knowledge and suggestion about the management of problems and difficulties that may occur after hospital discharge (Brewer & Therrien, 2000). The investigation for existing

impairment and developing a nursing plan at an early stage can help patients with mild head injury in returning to their work and daily routines faster with less impairment (Veltman, et al., 1993). In a comparative study of the effect of information preparation on self-report postconcussion syndrome at three months after the injury, which was conducted in patients with mild head injury, patients in the experimental group received a booklet about concurrent symptoms after mild head injury whereas those in the control group received usual care. The evaluation at three months after the injury showed that patients in the experimental group reported less overall symptoms and less stress and anxiety, in comparison with those in the control group (Pornford, et al., 2002). A study on the requirements during hospital discharge of patients with mild head injury at acute phase has shown that the patients need rehabilitation in various areas, including muscular system, brain, skin, and pain management. More than half of the patients expressed that they needed the rehabilitation of more than two areas. Most patients were assessed on their mobility more than on their self-care skills and cognitive capability thus the existing impairment was underrated, leading to a gap in continuous care because the patients did not attend their follow-up appointment. It was recommended that the assessment of care demands and of the patient's condition, appropriate management, staff training for the delivery of knowledge to patients and their relatives, and the arrangement with health care sources since early period of hospital stay would diminish the existing impairment in each patient (Kleppel, et al., 2002). Thus when patients are admitted into a hospital they should be prepared for hospital discharge because early discharge of unprepared patients may result in readmission with the same problems that are not sufficiently cared for during the hospital stay and after hospital discharge (Kee & Borchers, 1998). The preparation with individual teaching from the early day of hospital stay will contribute to an early and appropriate hospital discharge and will also reduce the risk of complications. The patient teaching process is the same as nursing process. It's also consist of 4 steps, comprising assessment, planning, implementation, and evaluation (Green & Kreuter, 1991; Redman, 1993; Whitman, et al, 1992). This process will enhance self-care potential in patients and their families, leading to continuous performance of self-care (Hickey, 1997; Kee & Borchers, 1998). Each step of teaching process is reviewed in details below.

1. Assessment. This is a stage of collecting patient's demographic data and personal information. This stage also assesses patient's ability to learn, patient's need and patient's problems in order to plan appropriate teaching to patients. The patients' problems should be assessed from the first day of hospital admission.

1.1 Assessment of the injury. Data about the injury can be collected from the observation, physical examination, and inquiring the patients, their relatives or witnesses of the incident. Information concerning the injury includes the cause of injury, type of injury, time of the incident, the patients' consciousness, order of events, concurrent symptoms such as headache, blurred vision, vomiting, or weakness in arms and legs. The assessment also includes neurological symptoms, e.g. level of consciousness according to the GCS, pupils' diameter and the reaction to light, arms and legs movement, eye movement, reflex response, and capability of cranial nerves. Vital signs must be observed and assessed to judge the trauma severity (Ahearn-Spera, 1996; Hickey, 1997; Scherer &Timby, 1995; Williams & Hopper, 1999).

1.2 Assessment of abnormal symptoms. The abnormal symptoms include wounds on the head or forehead, bleeding or leakage of serum or spinal fluid through the nostrils or the ears, dizziness or vertigo, headache, spasm or epilepsy, abnormal vision such as blurred vision, double vision or unclear vision, nausea and vomiting. Psychoneurological assessment includes the recognition of day, time and person, concentration, memory, problem-solving, decision-making, rational thinking, communication, behavior, emotion, and psychosocial states (Davidhizar & Bartlett, 1997; Hickey, 1997; McCabe, 2000; Valadka & Narayan, 1996; Tangamnuay, 1993; Pawichit, in Luweera, Ed., 1996).

1.3 Assessment of patients' history prior to the injury. This assessment includes the patients' lifestyle, their roles and functions, family relationship prior to the injury, and medical history. The assessment also includes the relatives' basic knowledge about mild head injury and their readiness in caring for the patients, and the availability of
help and beneficial sources in the community (Hickey, 1997).

2 Planning. This is a stage of setting up patient's teaching objective, scope of learning, content and teaching method (Redman, 1993). There are two steps in making a plan: setting the goals and planning the action. Patients with mild head

injury may loss their consciousness briefly and when they regain the consciousness they may express poor recognition of date, time, place and person, as well as having headache, feeling confused and dazed and having temporary amnesia (Davidhizar & Bartlett, 1997). The short-term goals are to help the patients to quickly and correctly regain their sense of date, time, place, and person and to enable them to recall present and past information. The long-term goal is to promote their ability in doing complex activities of daily living such as working or learning, thinking, and decision-making. Having both long-term and short-term goals will promote the patients' mental readiness and continuously enhance their self-care skills. The action involves training the patients to improve their skills in doing daily activities and in managing complications that may occur after hospital discharge (Williams & Hopper, 1999).

3. Implementation. This is a stage of teaching patients according to the plan. The nursing plan of action involves training the patients to conduct daily activities and the providing guidelines for the management of postconcussion syndrome and epilepsy. This action is conducted via teaching, demonstrating, and giving advice. The patients then practice the related skills and receive guidelines manual. The patients also receive mental support to get ready for hospital discharge and their relatives receive information about the changes in behavior, emotion, and personality along with the advice and recommendations for dealing with the problems. The sources of help in the patients' community are contacted for care plan referral (Ahearn-Spera, 1996; Hickey, 1997).

4. Evaluation. This is a stage of evaluating effectiveness of teaching – learning process. Evaluation must summarize evidence and determine how well the objectives are being met (Redman, 1993). The short-term plan is evaluated with physical examination, observation, and assessment of the patients' progress in performing daily activities and managing complications. The record of complications, as well as the patients' progress and barriers of action, helps in making decision for improving the teaching plan and the activities so that the patients and their caregivers are well prepared for hospital discharge. The consequent problems from physical, behavioral, emotional, cognitive, and psychosocial impairment are also assessed to make a continuous care plan at home for the persons responsible in caring for the patients. The long-term plan is evaluated after hospital discharge from home visits,

follow-up phone calls, appointment for follow-up assessment, and coordination with the concerning organizations (Ahearn-Spera, 1996; Hickey, 1997).

4. Instruction plan for patients with mild head injury

Instruction plan for patients with mild head injury consists of two domains, comprising the promotion of capability for daily activities and the assessment and management of complications.

4.1 Promotion of capability for daily activities

The Instruction plan for promoting patients' capability for activities of daily living involves various areas, as detailed below.

4.1.1 Motion and postural changes

Injury at the dorsolateral prefrontal cortex in the frontal lobe of the brain causes post traumatic tremor, which is usually concurent with ataxia, and the patients are at risk of injury from falls (Benarroch, et al., 1999; Krauss & Jankovic, 2002; Pokakul, et al., 2001). The assessment of the range of joint motion, muscle tone and muscle strength helps in preparing muscle strength for getting up, standing, and walking (Chinchai, et al., 2000), as well as gaining capability for in-bed movement, walking on a flat floor, walking up and down the stairs, and traveling in the community. Thus the activities aim to promote patients' capability in moving from place to place with safety and independency (Kyanko, 2000; Liddel, 1996).

The activities for promoting patients' motion and postural changes comprise quadricep setting exercise and gluteal setting exercise. The patients should practice contracting the quadriceps and the gluteus maximus muscles and holding them for five seconds before releasing. The exercise should be done 15-30 times in an hour, twice a day (Kisner & Colby, 1996; Kyanko, 2000; Pongprapai, 1995). Another activity is for maintaining body balance while sitting, standing, and walking. The patients will learn to balance their weight between both sides of the body and to transfer body weight while sitting or standing to regain normal muscle strength. They are also trained to turn around while standing or sitting in order to maintain muscular stability (Davis, 1996). The practice includes going up and down the bed, sitting down and standing up from a regular chair, going to the bathroom, walking on a flat floor, and walking up and down the stairs. The patients will have isometric exercise of the

legs, the body, the hips, and the thighs so that their muscles can firmly take the body weight in sitting, standing, and walking postures (Hoeman, 2002; Turner, 1992).

4.1.2 Self-care

The pathology in the orbitofrontal region of prefrontal cortex causes behavioral disorders. The patients appear inactive and apathy; they lack interest in themselves and in the environment and ignore daily routines. They are unable to initiate basic activities such as cleansing the body, getting dress, or changing clothes without an encouragement from other people (Weisberg, 1996). Self-care capability can be assessed from the patients' hygiene care, such as face- and hand-washing, shaving, tooth brushing, hair care i.e. combing and washing, having a shower, selecting of clothes, wearing and taking the clothes off. It also includes eating behavior such as cutlery utilization, drinking, sucking, chewing and swallowing, including coughing to release the food that get stuck in the throat. The excretion of body waste products and cleansing afterward; the body motion and maintenance of posture during the cleansing are also included as self-care activities (Kyanko, 2000).

Activities for the management of self care involve training the patients to take care of their personal hygiene and to do various activities, such as washing face, shaving, washing hands, brushing teeth combing and washing their hair, by themselves (Hoeman, 1996). The patients are trained to put on and take off underwear, shirts, trousers, skirts, socks and shoes (Fotti, et al.,1996). They learn to eat with spoon and fork, and to hold their drinking glasses (Williams, 1995). They are trained to control the excreting activities by having defecation every morning, having high-fiber diet such as fresh vegetable and fresh fruits, and drinking water 2000-2500 ml. per day to ease the defecation (Hickey, 1997; Ignatavicius, 1995). They are also trained to urinate every two hours, and avoid caffeine drink because it has diuretic effect and irritate bladder thus complicating urinating control (Ulrich, et al., 1998). The patients should also learn to have pelvic muscle exercise by contracting and relaxing the muscles in lying, sitting, and standing postures, counting 1-10 during the contraction and relaxation, doing it 15 times within 1.5-2 minutes for each posture. This exercise will strengthen the pelvic muscles and muscles adjoining the urethra (Hickey, 1997; Pierson, 1995).

4.1.3 Communication

The psychoneurological impairment resulting from pathology in the frontal lobe of the brain disturbs the patients' ability to seek proper words for interacting with other people (Joseph, 1996) and for using appropriate language in their communication (Pokakul, et al., 2001). The patients have impairment in understanding the language, speaking, and writing (Davidhizar & Bartlett, 1997) thus having problems in communication. The patients' capability for communication can be assessed from correct name-calling of objects in view, repeating or reviewing sentences or phrases and telling of their comprehension from reading a book or a magazine, and the use of body language along with their communication (Lapthikultham, 2000), including their dictation ability (Pokakul, et al., 2001).

Action for the management of communication includes speaking practice by using short and simple words. The patients should learn to the speak simple sentences slowly and clearly to enhance understanding in their communication and to promote their self-esteem (Carpenito, 1993; Hickey, 1997). They have writing practice by writing sentences to describe what they want or what they think. This practice also provides an option for communication (Carpenito, 1993). The patient should also learn both verbal and non-verbal communication skills to interact with other people; they may write, use body language, or use symbols when the verbal communication is not understood (Hickey, 1997; Pokakul, et al., 2001).

4.2 Assessment and management of complications

4.2.1 Postconcussion syndrome. Patients with mild head injury have postconcussion symptoms, including headache, dizziness/ vertigo, fatigue, blurred vision, impulsivity, anxiety, emotional disturbance, agitation, insomnia, deteriorated memory and concentration, and learning difficulties.

1) Headache results from the compression on nociceptors in the area sensitive to pain including the meninges of dura mater at the basal of the brain near major vessels, cerebral vessels, head, face and neck muscles (Hanzen, 1998; Hickey, 1997; Saper, et al., 1993; Ulrich & Canale, 2001). In addition, the patients' mental condition prior to the injury, such as stressed, depressed, anxious, is also associated with headache due to muscular contraction, which is concurrent with vascular constriction, leading to deformity in the pain receptors (Hanzen, 1998;

Hickey, 1997; Lasater, 2000; Martelli, et al., 1999). This symptom can be assessed from the pattern of headache, e.g. on the temples, on the back of the neck, on the upper part of the back of the neck, constriction pain, dull pain, throbbing pain, or viselike pain between mild to moderate level. The contraction of neck and head muscles is account for these kinds of headache (LeMone & Burke, 1996). Patients with intense headache will feel the pain in both sides of the head along with nausea and vomiting (Appenzeller , 1993; Oleson, et al., 1993). They do not want to be in a brightly lit or noisy place while having headache and they will express kinesophobia because rapid postural change stimulates headache (Oleson, et al., 1993; Limsukon, in Puanwarin, Ed., 1992).

Action for the management of headache comprise taking prescribed medication and observing the medication side effects such as drowsiness, peptic irritation, yellow eyes and skin, dry mouth, urinary retention, orthostatic hypotension, and cold compress on the forehead (Boss, 1994; Ulrich & Canale, 2001). Face and neck massage helps in relaxing the muscles and stimulating blood circulation (Appenzeller , 1993; Brashers, 1998; Department of Mental Health, Ministry of Public Health, 2543). The patients should avoid having tea or coffee, which contain caffeine, and MSG, which has glutamate, because these substances induce headache (Chipps, et al., 1992; Hickey, 1997; Lasater, 2000). They may learn to cope with stress by having progressive muscle relaxation training – contracting the muscles for 3-5 seconds and relax for 10-15 seconds. Another one is the diaphragmatic respiratory training – taking deep and slow breathe using the diaphragmatic muscles on the abdomen and practicing for 5-10 minutes each time (Davis, et al., 1995; Hickey, 1997; Ulrich & Canale, 2001; Department of mental Health, Ministry of Public Health, 2000). The patients should rest in a quiet, peaceful room and avoid disturbing noise to have contact with less environmental stimuli because bright light and loud noise worsen headache (Oleson, et al., 1993).

2) Dizziness/vertigo results from labyrinth concussion, which is associated with body motion and balance movement. After the injury, there may be cells or debris from utriculus of vestibular labyrinth moving into the posterior semicircular canal thus stimulating the movement of canal, leading to the signaling defect in vestibular (Evans, 1996; Goldberg, 2001; Lasater, 2000). The patients may

have illusory movement, which is usually in circular motion. Nevertheless, illusory movement may appear in plain lineor may be found in turning motion along with dizziness (Chareanprasert, in Prakunhangsit and Kulpraditharom, Eds., 1995). The symptoms can be assessed from blankness and giddiness during postural changing, confusion, nausea, vomiting, ataxia, unsteadiness, being unconfident in changing postures, and light-headedness. The symptoms worsen when the body is moving or there are objects moving around the patients whilst having the symptoms (Benarroch, et al., 1999; Hoeman, 1996).

The management of dizziness/ vertigo symptom includes lying down and having a rest in a quiet place since loud noise may cause dizziness, as it is believed that strong sound energy impacts the macular uticuli (Chareanprasert, in Prakunhangsit and Kulpraditharom, Eds., 1995). The patients may take prescribed medication for relieving nausea and vomiting symptoms to reduce stimuli to the organs regulating body balance and to suppress labyrinth functioning (Prakunhangsit, in Prakunhangsit and Kulpraditharom, Eds., 1995). The medication side effects, such as drowsiness, must be observed. Also, the patients should move the head slowly and should not quickly change the posture, e.g. when they are getting up, sitting up, standing, or walking; they should be careful about possible accidents, e.g. falls, and take care of general health such as drinking enough water to prevent dehydration form vomiting (Martin, 1995). The patients who have ataxia, twitching eyes, or severe vomiting need to seek medical consultation within 24 hours (Antle & Allen, 1995).

3) Fatigue. The patients feel stressed, feared and anxious after having head injury in the amygdala, hippocampus, entorhinal cortex, orbitofrontal cortex, and anterior cingulate (Charney & Bremner, 1999). The injury has impact on the lateral hypothalamus, leading to the stimulation on the sympathetic nervous system supplying to the adrenal medulla, followed by the excretion of catecholamines. The catecholamines mostly released–approximately 80 percent, is epinephrine, which has effect on the circulatory system and body metabolism (Sudsuang, 1992). Epinephrine stimulates anaerobic glycolysis thus increasing lactate release from muscular cells, causing increased retention of lactic acid and hydrogen ion (H^+) and decreased ATP; thus, muscular functioning is lessened (Powers & Hawley, 1990). At the same time, stress also stimulates the paraventricular nucleus of the hypothalamus, resulting in the

release of corticotropin releasing factor (CRF), which consequently stimulates the anterior pituitary gland to release adrenocorticotropin hormone (ACTH) into blood circulation. The ACTH then stimulates adrenal cortex to increasingly release stress hormone (cortisol) (Charney & Bremner, 1999). Cortisol has strong effects and it stimulates the decomposition of protein from muscular cells and connective tissues, inhibits the transportation of glucose into muscular cells, and decreases protein synthesis from amino acids thus reducing the amount of amino acids in body tissue, resulting in muscular atrophy and weakness. Therefore, the patients become easily tired when having activities (Krisanamara, 1995; Ruansomboon, 1992). Fatigue can be assessed from the patients' report of being tired and their changes in sleeping pattern. They may frequently fall asleep during the daytime, conduct activities slowly, and have slow responses. They also have emotional changes, stress, lack of concentration and decreased ability to deal with problems (Cassmeyer, 1995; Habel, 1996)

The management of fatigue includes finding the causes and making record. The patients should have enough rest for averagely 7-8 hours a day (Friedman, 1995); take diet consisting of all five nutritional groups, i.e. rice, flour, brad, non-fat meat, eggs, fish, dry bean, milk, fat, oil, vegetables and fruits (Leelahakul, et al., 1992). The patients may perform activities in order of priority and the activities should require short time to finish; or they may divide times to do an activity thus having time to rest and recover from tiredness (Sparks & Taylor, 1998). The patients may also practice managing stress with muscle relaxation training and diaphragmatic respiratory training to become more relaxed and to relieve emotional stress that is also a cause of tiredness (Cassmeyer, 1995).

4) Blurred vision. This symptom results from the defect in ocular muscles, which is a consequence of injury on the connection of neurons from ocular motor nucleus to the myoneural junction. The pathology around the abducens nerve induces weakness of lateral rectus muscle and, as a result, the patients cannot control their eyes to have external or side visions (Benarroch, et al., 1999; Chuenkorngkaew, in Singkhalwanich and Chiamchaisri, Eds., 1997). The pathology at the trochlear nerve causes weakness in the superior oblique muscles, causing double vision when the patients look straight, downward, or inward (Benarroch, et al., 1999). The pathology in the general somatic efferent fibers (GSE fibers) of the oculomotor nerve

causes weakness in the medial rectus, inferior rectus, and inferior oblique muscles on the same side and of the superior rectus muscle on the opposite side. The sign and symptoms of this problem is eyeball rolling outward and downward because the lateral rectus and superior oblique muscles still function normally (Benarroch, et al., 1999; Hickey, 1997; Chuenkorngkaew, in Singkhalwanich and Chiamchaisri, Eds., 1997). This symptom can be assessed from the patients' report of having double vision from looking at one object.

Management of double vision includes closing one eye with an eye pad to inhibit the contradictory interpretation of vision on the visual cortex of the occipital lobe. This also helps in reducing dizziness or nausea and vomiting that are concurrent with the sense of unsteadiness on account of double vision (Alexander, et al., 1994; Whyte, et al., 1998). Home accident should also be prevented with safe environment; objects or furniture in the house should be kept in the same place to prevent confusion (McCabe, 2000). The patients should avoid driving; however, they can participate in social activities, as well as doing daily activities and taking personal hygiene care, as usual. They should keep appointment with the physician to have ocular muscles and eye field examinations regularly (Aragon, 1996).

5) Impulsivity, anxiety, emotional disturbance, agitation. These symptoms result from the pathology in the amygdala of anterior limbic system, which regulates patients' emotion and behavior. The defects in that area lead to emotional and behavioral disturbance (Benarroch, et al., 1999). The patients may be present with moodiness, impulsivity, disinhibited, irritability, fear, and agitation (Benarroch, et al., 1999; Lapthikultham, 2000). Behavioral disturbances include depression, apathy, mask-like expression and confabulation (Ruangtrakul, 2001). These symptoms can be assessed from the patients' verbal expression, their tolerance to frustration or anxiety, their facial expression or behavioral control, their report of self-perception, self-image, and self-concept, their ability to communicate or participate in activities with other people, and their avoidance of having a conversation (Winyoowat, 1987; Tor Sakul, 1989).

Management of impulsivity, anxiety, emotional disturbances, and agitation includes developing and practicing skills for emotional and

need control. The patients should be trained to express their feelings in constructive and socially acceptable manners. For instance, they may express their feelings, angers, or frustration by writing, speaking, drawing, or having exercise (Schultz & Videbeck, 1998). They may encourage themselves to express their feelings or to participate in various activities, such as having a hobby, in order to feel less worried or less anxious (Klebanoff & Smith, 1997). They may have muscle relaxation training, by contracting and relaxing 10 groups of muscles, comprising both hands and both arms, forehead, eyes, cheek, noses, jaws, tongue, lips, neck, chest, shoulders and back, abdomen and buttock, and both feet and legs. During this exercise, the patients will concentrate on relaxing each muscle group thus they are distracted from their jumbled thoughts, feel less anxious and, finally, gain concentration (Davis, et al., 1995; Hickey, 1997; Peirce, 1995; Department of Mental Health, Ministry of Public Health, 2000). They will learn to adapt themselves to the environment by participating in social activities at their free time in order to improve the awareness of themselves and of the environment, as well as to relax and have some enjoyment (Gatens & Hebert, 2002).

6) Insomnia. The loss of consciousness from head injury causes interferences in the sleep-wake cycle (Alexander, 1995; Habel, 1996). However, there is no established explanation for the insomnia in postconcussion syndrome. The posttraumatic stress disorder and anxiety may account for the delayed start of sleep and the lengthened duration of waking period (Kaufman, 2001). Insomnia can be assessed from the number of sleeping and waking hours in a 24-hour cycle and from observing the patients' sleepiness and tiredness (Ruangtrakool, 2001). The number and duration of daytime naps should also be noted (Friedman, 1995), as well as the patients' use of sedative or sleeping drugs to help them sleeping fast and long (Habel, 1996; Ulrich, et al., 1998; Ruangtrakool, 2001)

Insomnia can be managed by having exercise such as walking, jogging, or playing sports for thirty minutes during the daytime at least three times a week to reduce stress and to promote good sleep (Carpenito, 1993). The patients should regulate their bedtime and wake-up time, avoid taking a nap in an afternoon or in the evening, and set up the bed room environment to promote sound sleep. For instance, the bed room should be quiet and use dim lighting unless the light is turned off and it should not have a television or a radio inside (Habel, 1996;

Srisurapanon & Dissayawanich, 1999; Ruangtrakool, 2001). The patients may practice progressive muscle relaxation technique from head to toe everyday to relieve stress (Srisurapanon & Dissayawanich, 1999). Sedative or sleeping medications should be avoided to prevent drug dependency and the decrease in daytime activities due to insufficient sleep at night (Habel, 1996). After receiving anti-epileptic medications, such as dilantin, the patients should observe their insomnia because the medication has such side effect. They should also avoid caffeine drinks, e.g. tea and coffee, as caffeine has stimulating effect on the central nervous system, as well as diuretic effect, thus it interferes sleep. Alcoholic drinks should be avoided too and the patients should not have too much late dinner. Milk at bedtime is recommended because tryptophan in milk promotes good sleep (Carpenito, 2000; Duchene, 2002; Edwards & Ackley, 1995; Ulrich, et al., 1998). The patients should also have personal hygiene care, such as having a shower or brushing teeth, before bedtime as these activities generates the sense of relaxation and comfort, and the desire to have a rest (Carpenito, 1993).

7) Impairment in memory, concentration and learning ability.

These complications result from the pathology in both sides of the hippocampus, amygdala, mamillary bodies, and neocortex in the dorsolateralprefrontal cortex. The functioning of theses parts are associated with memory, concentration, motivation, learning, and executive functioning; thus the disorders in these areas cause amnesia, either anterograde or retrograde. The patients lack concentration, have decreased capability to learn new information, lack motivation and creative idea to initiate new work, lack ability to make a decision and solve problems, and are not able to give abstract rationale (Benarroch, et al., 1999; Ruangtrakool, 2001). These complications can be assessed by examining the patients' memory, comprising immediate memory, recent memory, and remote memory. The assessment should include the concentration, intention to complete an activity, and learning capability such as calculations, recalling three objects, review of short phrases, understanding and explaining of proverbs or metaphor, and decision-making (Benarroch, et al., 1999; Johnston, et al., 1996; Lapthikultham, 2000).

The impairment in memory, concentration and learning abilities can be managed with concentration practice. The patients may sit in a comfortable position, focusing their minds on one subject, closes their eyes and slowly inhale and

exhale whilst counting the breathing. The ventilation counting is the key to keep them concentrate, to improve their memory, and to refresh their brain thus they will be able to solve problems better (Department of Mental Health, Ministry of Public Health, 2000). Skills for decision-making should also be practiced, e.g. selecting food for each meal, or planning daily activities, in order to enhance the capacity for appropriate decision-making (Gatens & Hebert, 2002). The patients may also review their knowledge about activity performance and writing notes about the activities for each day in a diary or a pocket calendar to support their short-term memory (Brown, 1987; Sparks & Taylor, 1998). They may also practice doing activities that encourage their attention and help increasing the length of attention span, e.g. reading daily news from a newspaper and having a discussion with other people; any distraction should be eliminated, e.g. turning of the television or the radio, so that the patients can pay constant attention to only one topic or one subject at a time (Gatens & Hebert, 2002). They should also be trained to have a telephone conversation to organize their thoughts and to increase their concentration with listening (Theuerkauf, 1996; Tangamnuay, 1993).

4.2.2 Epilepsy

Epilepsy results from the injury of brain tissues that causes hemorrhage in the neurogial cells. As a consequence, iron is released from hemoglobin and transferin, causing the increase in intracellular calcium. The neurons are then damaged, causing giotic scar, thus the neurons lose their stability and have abnormal excitability. After the impaired electricity on neuron membrane accumulates to a certain level, it will release abnormal nerve impulse to other parts, causing epileptic attacks (Evans & Wilberger, 1999; Honavar & Meldrum, 1997; Weisberg, 1996). This complication can be assessed from symptomatic aura such as smelling or tasting specific sense, having déjà vu, staring, not responding to questions or giving irrelevant and confusing answers, as well as the presence of anxiety, fear or intense abnormal emotion (Ruangtrakool, 2001). The patients may report having micropsia or macropsia before passing out, which reflects impairment in their reception or visual illusion. The origin of epilepsy is in the lateral temporal lobe and spreading to the limbic cortex (Benarroch, et al., 1999; Schmidt & Ried, 1991). While losing their self-control, the patients will discontinue their present activities and have bizarre behavior such as

licking the lips, swallowing, wandering aimlessly, fidgeting, reaching out, and automatism. These motions are involuntarily whilst the patients are not conscious. It is believed that most epilepsy originate at the temporal lobe. After recovering from the epileptic attack, the patients will not remember the event during the attack (Chipps, et al., 1992; Kotagal, 2001; LeMone & Burke, 1996).

The following actions are recommended for the management of epilepsy:

1. Support the adjustment to epilepsy. The patients should receive information about causes of epilepsy, the prognosis, and the treatment for better understanding about the symptoms (Doenges, et al., 1993). They should also receive advice about the aura of the symptom, e.g. distinctive smell, déjà vu or sudden stress (LeMone & Burke, 1996). For the prevention of epilepsy, the patients should avoid physical and emotional stress, have activities that are not too tiring, have sufficient rest and diet, avoid caffeine drinks and alcoholic drinks, avoid stimulation from external factors, such as light and sound; as a consequence, the patients would adjust to epilepsy with more strength. The patients should also avoid causes of epilepsy (Doenges, et al., 1993; Jaffe, 1992). In addition, they should receive information about anti-epileptic medications, including objectives of the treatment, types of drugs, dosage and administration, and side effects, so that the patients will understand and accept the change in their self-image from taking anti-epileptic drugs, such as hirsutism and gingival hyperplasia (Swearingen, 1994). The patients should avoid activities or job that is harmful for their condition, e.g. driving, operating a machine, climbing up to a high level, or laborious work, because these jobs may activate epilepsy (Swearingen, 1994). They should learn to manage stress, depression and anxiety from the unpredictable epileptic attack, fear of being socially unaccepted, and lower self-esteem. They may have muscle relaxation training or diaphragmatic respiratory training (Schnell, 1993; Swearingen, 1994; Ruangtrakool, 2001). The patients' relatives should learn how to help the patients during an epileptic attack to prevent possible harmful consequence. The following actions are recommended: loosing the patients' clothes to allow chest expansion, giving support to the patients' head to prevent it from knocking on the floor or the wall, and turning the patients' face to one side to prevent aspiration and airway obstruction from the tongue rolling

backward and to facilitate the drainage of saliva and secretion (Doenges, et al., 1993; Schnell, 1993). Food or false teeth must be taken out of the patients' mouth. A spatula, spoon handle, pencil, or other objects should not be inserted into the patients' mouth because they may cause injuries on teeth and mouth and may obstruct the airway (Hausman, et al., 1995). After the epilepsy is over, the patients may feel dazed and confused and they may want to have some more sleep, thus the relatives should take care that the patients have enough rest as they like (Hickey, 1997; Schnell, 1993). The patients' relative, friends, and caregivers should be encouraged to give the patients support and understanding, to raise their spirits, and not express disgust toward the patients. Nevertheless, they should not be overprotective and should encourage the patients to participate in social activities with other people to prevent social isolation and to reduce the patients' sense of depression about the restriction of their lives (Doenges, et al., 1993; Jaffe, 1992; Schnell, 1993). Every time they go out, the patients should carry a card containing information about their name and surname, the anti-epileptic drugs they are receiving, the name of the doctor, contact address, drug allergy, and how to help them when they have epileptic attacks. In case of emergency, this card can present all essential information about the patients so that they will receive appropriate and correct help in time (Jaffe, 1992; Hausman, 1995; Tucker, et al., 2000; Swearingen, 1994).

2. Epileptic control. Current treatment that is commonly used for controlling or reducing the frequency of epilepsy is the treatment with anti-epileptic drugs. These drugs have mechanism of action that increases the threshold at the motor cortex, thus reducing the brain response to the neurotransmission from defected neurons and will suppress or reduce the distribution of epilepsy discharge from its origin by suppressing the transmission at synapse or reducing nerve impulse (Chipps, et al., 1992). The patients should know how to use the medication, its action, the name of the medications and the dosage prescribed for them. They should maintain compliance with the treatment because the objective of treatment with anti-epileptic drugs is to suppress epilepsy activity by increasing epileptic threshold so that the neuron membrane is more stable and the stimulation on neurons is lessened. Non-compliance with treatment may lead to more frequent epilepsy (Doenges, et al., 1993; Satischandra, et al., 2001). Nevertheless, the patients should not buy the medication

over-the-counter because it may have therapeutic effect and the drug level in the blood may reach a poisoning level. They should regularly attend follow-up visits to receive appropriate treatment and suggestion (LeMone & Burke, 1996) and to have blood examination for drug level in order to appropriately adjust the dosage (Loeb, 1994; Tucker, et al., 2000).

3. Observation of one's self and the environment activating epilepsy. The observation includes monitoring the side effects of anti-epileptic drugs such as drowsiness, which normally disappears or mildly persists. The patients may feel tired, dazed, and confused or may have upper respiratory tract infection more often because one of the medications side effects is decreased body immune response (Gram, 1991). They may also have gingival hyperplasia from connective tissue growth on account of long-term treatment with anti-epileptic drugs. Gingival massage can delay the increase in the cells of the gingival connective tissues (Ahearn-Spera, 1996; Swearingen, 1994). The patients should use soft toothbrush cleansing their mouth and teeth 3-4 times a day to reduce the risk of oral infection (Gram & Dam, 1995; Loeb, 1994; Schnell, 1993; Swearingen, 1994). They should observe any abnormalities in the oral cavity and see a dentist every six months or at least once a year (Ahearn-Spera, 1996:; Hickey, 1986). Anti-epileptic drugs should not be taken when the stomach is empty because it irritates the stomach and causes nausea and vomiting thus the drug should be taken immediately after meal (Doenges, et al., 1993: 269; Swearingen, 1994: 295). When noticing the presence of side effects including anemia, nystagmus, ataxia, diplopia, or rash, the patients have to seek medical care immediately for the reduction of drug dosage because these are the symptoms of drug overdose (Hickey, 1997; Yablon, 1996; Swearingen, 1994; Suethanapornkul, 2000). The patients should avoid epileptic stimuli such as insufficient rest, not having enough sleep, as tiredness may lower the epilepsy threshold (Ahearn-Spera, 1996 ; Loeb, 1994). Overworking will result in fatigue, which can stimulate epilepsy; mental stress and worry are also precipitating factors of epilepsy (Loeb, 1994). Abstinence from food or having irregular meal induces hypoglycemia, which lower the epilepsy threshold, thus stimulating epileptic attack (Gram & Dam, 1995; Loeb, 1994). The patients should avoid caffeine drinks because it may induce overhydration, which activates epileptic attacks (Boss, 1994; Loeb, 1994; Swearingen, 1994). Also, alcoholic drinks should be

avoided because alcohol can reduce the level of anti-epileptic drugs in plasma by accelerating the decomposition of the drugs in the body, causing overhydration, and lowering the epilepsy threshold (Gram & Dam, 1995; Swearingen, 1994). Female patients should make a note whether they have more epileptic attack during menstruation because hormonal change during menstrual period causes water retention and the usual dose of anti-epileptic drug may be insufficient for epileptic control. However, this problem can be self-managed with the restriction of intake fluid and salty diet (Boss, 994; Sweat, 1999; Tucker, et al., 2000). Moreover, the patients should not go to the place with bright lighting and loud noise because light and sound can activate epilepsy. If necessary, the patients should use sunglasses in the glare (Ahearn-Spera, 1996; Chipps, et al., 1992). They should avoid dangerous action or environment such as swimming, climbing up a high rise, working near fire, operating machines or vehicles such as boats or cars, and crossing a road on their own (Schnell, 1993; Achnanuparb, 2001).

In conclusion, patients with mild head injury have physical, cognitive and behavioral impairment. The restrictions of living after having the injury are mostly associated with the impairment in performing activities of daily living thus having impact on the patients' quality of life. In Individual teaching , each subject was given structured teaching at his/her bed side, which consists of examining the impairment, anticipating consequent problems after hospital discharge, and preparing the patients for hospital discharge by teaching how to assess the symptoms and the management of problems after hospital discharge, will help the patients in developing their self-care potential to be able to manage the problems effectively and to be safe from possible complications thus being able to return to work and to have daily activities more quickly.

CHAPTER 3
METHODOLOGY

Research design

This study was a quasi-experimental design research, aiming to investigate the effect of individual teaching on capability for daily activities and complications in patients with mild head injury.

Population and sampling

The population of this study were male and female patients with mild head injury (GCS score ranged between 13 and 15) who were admitted for medical treatment at the 2 general surgical wards of Somdej Phrabuddhalertlar Hospital, Samut Songkram Province.

The sample was composed of 40 patients selected from the population with purposive sampling without randomization and was divided into a control group and an experimental group with 20 subjects in each group. The subjects in the control group received usual nursing care whereas those in the experimental group would receive usual nursing care and individual teaching.

The patients to be included in the study were those with the following characteristics:

1. aged between 15 and 60 years;
2. had head injury without concomitant injury of other organs;
3. were present with good consciousness and were able to communicate;
4. newly admitted into the hospital for less than four hours and would receive treatment in the hospital for at least three days;
5. had sign or symptoms of brain concussion such as headache, dizziness, nausea, vomiting, blurred vision, or limb weakness;
6. had a caregiving relative during hospital stay.
7. agree to join in the study.

The patients with the following characteristics were excluded from the study:

1. further investigation showed injury of other organs in addition to head injury;
2. systolic blood pressure was lower than 90 mmHg;
3. the patient withdrew from the study;
4. the patient had GCS 15 and had no symptom of brain concussion.

The study was firstly conducted with the control group until data from all 20 subjects were completely collected; the research intervention was then employed with subjects in the experimental group. Such separation of study period between the two groups was to prevent the sense of bias in the control group on account of disparities in the delivery of care.

Setting

This study was conducted at Somdej Phrabuddhalertlar Hospital in Samut Songkram Province, which is a 340-bed provincial hospital. Among the hospital staff, there are neurologists and nurses specialized in neurological nursing. The admission rate of patients with head injury is 22 patients per month averagely. Among these patients, 17 of them, or approximately 77 percent, had mild head injury and the hospital record shows the readmission rate of 3.16 percent. There was not an individual formal teaching plan designed for patients with head injury at any level of severity. The present usual nursing care at the time of the study was concerned with instruction about medication; observation of abnormal symptoms such as headache, deteriorated consciousness, nausea, vomiting, and blurred vision; wound care; and compliance with follow-up appointment.

The study site was the male and female general surgical wards. There are also 30 bed in both research site serving 16.25% and 11.62% of patients with mild head injury. In addition, both of them had similar routine nursing care, physician, nurse to patient (1:3), and nurses' experience.

Instrumentation

The research instruments comprised the following:

1. Instruments for research intervention, consisting of:

1.1 Instructive plan for patients with mild head injury. The researcher developed this plan according to the teaching process with an emphasis on enhancing mild head injury patients' competence in performing daily activities and the management of complications from mild head injury.

1.2 The handbook for patients with mild head injury. The manual, which would be given to the patients when they were discharged from the hospital, including information and instruction about enhancing competence in performing daily activities and the management of complications from mild head injury.

2. Instruments for data collection, consisting of:

2.1 Demographic characteristics of the patients with mild head injury. The collected data were gender, age, marital status, education level, occupation, income and sufficiency of income, diagnosis, length of hospital, and GCS on admission.

2.2 Mild head injury record. This record include the assessment of the injury from the following assessment:

2.2.1 Assessment of the injury, including the mechanism of injury, lesion of the injury, length of unconsciousness, limb movements, eye ball movements, pupils' size and reaction to light, body reflexes and neurological effectiveness, and vital signs;

2.2.2 Assessment of abnormal symptoms such as level of consciousness, pupil size, reaction of brain stem functioning, movements, and other impairments.

2.3 Capability of daily living activities assessment tool This record collected data from the following assessment :

2.3.1 Assessment of capability for daily activities. This assessment was adapted from the PULSES profile, which was developed by Moskowitz and McCann in 1957 to evaluate functional dependence in the activities of daily living of patients with chronically illness, patients with neurological disease, and

elderly patients during their hospital stay and when they were discharged from the hospital. In 1979, Ganger and associates modified the original profile by using it with patients with chronic illness in a rehabilitation unit to examine the reliability of this instrument (Granger, et al., 1979: 145-154). The test-retest of reliability resulted in the value 0.87 and the interrater reliability was higher than 0.95 (Cole, et al., 1995: 66-67). This profile consisted of the assessment of physical condition (P), upper limbs (U), lower limbs (L), sensory status (S), excretory management (E), and psychosocial status (S). For this study, the PULSES profile was adapted to assess the capability for daily activities of patients with mild head injury on admission, during hospital stay, and on discharge (Appendix E). The patient's capability for daily activities would be assessed in three domains with the total number of 12 assessing statements, as listed below.

1) Movements and postural changes, comprising getting up or down the bed, sitting up, seating, walking on a flat surface, and walking up and down the stairs. There were four items for assessing the patient's capability in this domain – item 1, 2, 3, and 4.

2) Personal care, including personal hygiene care, dressing and undressing one's self, eating with forks and spoons, holding drinking glasses, and excretory controlling. There were five items for assessing the patient's capability in this domain, comprising item 5 to 9.

3) Communication, including naming things, interpersonal conversation, and choices of communication. There were three items for assessing the patient's capability in this domain, comprising item 10, 11, and 12.

The response for this assessment tool was given in a 4-level rating scale. The following criteria were used for scoring the responses:

Level 1 (1 point) referred to the complete lack of capability to perform the activity and the patient required supervision and full assistance.

Level 2 (2 points) referred to the capability to partially perform the activity under supervision, support, and frequent assistance;

Level 3 (3 points) referred to the capability to perform activity by one's self with occasional supervision;

Level 4 (4 points) referred to the capability to perform the activity

independently with no need of help or supervision (independent / intact);

The total score ranged from 12 to 48. The lower score reflected the less capability for daily activities or having restrictions in the performance. On the other hand, the higher score indicated good capability for daily activities.

2.3.2 Assessment of mild head injury complications. The researcher developed this instrument from the review of textbooks and research papers. The symptoms to be assessed were mostly concerning with postconcussion syndrome such as headache, dizziness, fatigue, blurred vision, irritability, disinhibited, insomnia, and forgetfulness. The epileptic symptoms were also assessed from staring, intense emotional response such as fear or agitation and from strange behaviors. Data were recorded from the presence or absence of signs and symptoms of complications. The presence of a sign or a symptom was scored 1; and the absence was scored 0. The total score ranged from 0 to 10. The resultant scores of 2 or higher indicated that the patient had complications of mild head injury.

Qualifications of the instrument

Validity

The research instrument was approved by the following six experts (Appendix A) to examine content validity, appropriateness of the language, and clarity of contents. The experts examining the validity of research instrument were listed below.

1. For the instructive plan, the handbook, assessment of capability for daily activities for patients with mild head injury, the experts were composed of:

2 nurse instructors who are specialized in neurosurgical ;

1 physician who are specialized in medical rehabilitation;

2 nurses who are specialized in neurosurgical nursing .

2. For the assessment of mild head injury complications record, the experts were:

1 physicians who are specialized in neurosurgery;

1 nurse instructor who are specialized in neurosurgical nursing;

2 nurses who are specialized in neurosurgical nursing .

The instruments were subsequently modified until they were appropriate for the research.

Reliability

After the instructive plan for patients with mild head injury, the handbook for patients with mild head injury, and the assessment tool of complications of mild head injury were amended in response to the experts' recommendations, the instruments were tried out with 10 patients whose characteristics met the inclusion criteria to examine the objectivity. During the pilot study, the researcher revised the sentences and check the implications of practicing this program. The reliability of the instruments for assessing capability for daily activities in patients with mild head injury and mild head injury complications was examined with interrater reliability and resulted in the reliability values 0.80 and 0.90

Data Collection

The researcher surveyed for the patients with mild head injury, established relationship, and provided care according to individual teaching. The research assistants were trained for assessing capability for daily activities and complications as follow:

Six staff nurses from the 2 general surgical wards, who are registered nurses and specialized in neurological nursing more than ten years were prepared to be the research assistants in assessing the patients' symptoms in the first assessment (Day1) and the second assessment (Day 3 or on the discharge day) using the assessment of capability for daily activities and assessment of mild head injury complications. The researcher explained each item of assessment tool and the research assistants read each item until they were doubtlessly.

Data were collected in the following manners:

1. The researcher requested for an introduction letter from the Faculty of Graduate Studies, Mahidol University. The letter was then submitted to the Director of Somdej Phrabuddhalertlar Hospital, Samut Songkram Province to explain the objectives of the study and to ask for permission for collecting data in the hospital everyday at 7.00–8.00 a.m. and 4.00–5.00 p.m.

2. After the permission for collecting data was granted, the researcher informed the Chief of Nursing Department and the Head Nurse of the 2 General Surgical Wards about the research study, including the process of data collection, in details. Data were then collected.

3. The researcher surveyed for patients with mild head injury everyday at 7.00 a.m.

4. A patient with mild head injury whose characteristics met the inclusion criteria would be collected. The study was conducted with the control group first until the required data were obtained from all 20 subjects; the study with the experimental group would be conducted afterward. Before starting the study, the researcher introduced herself and informed the patients about the objectives of the study, process of the study, and expected benefits. The patients were informed about the protection of their rights along with the presentation of the consent form (Appendix B) and were invited to participate in the study. The patients who agreed to participate in the study were informed that they could withdraw from the study at anytime. Their withdrawal would have no effect on medical care from the hospital in anyway.

5. Data were collected in steps as described below.

The patients in the control group who would receive usual nursing care from staff nurse and health team of Somdej Phrabuddhalertlar Hospital and the patients in the experimental group who would receive usual nursing care and individual teaching for patients with mild head injury would be assessed three times on day 1, day3, and one week after discharge. The research assistant would assess the patients in the first two assessments and the researcher would perform the third assessment after the patients had been discharged from the hospital for a week.

7. The researcher performed the process of data collection for each group as follow:

Table 1: The process of data collection in the control and the experimental group

Control Group	Experimental Group
Day 1 (1st Assessment) 1. During 7.00-7.15 a.m., the researcher established relationship by talking, asking questions and listening about their illness with the patient and his/her relatives. 2. Data concerning personal information and history of mild head injury were collected. 3. During 7.15–7.30 a.m., 3.1 The research assistant assessed the patient's capability for daily activities and the complications from mild head injury. 3.2 The patient received nursing care from staff nurses and the healthcare team according to the usual nursing care, which included giving instruction about medication-taking, observing signs and symptoms of complications such as headache, increased drowsiness, nausea, vomiting, and blurred vision, and wound care.	**Day 1 (1st Assessment)** 1. During 7.00-7.15 a.m., the researcher established by talking, asking questions and listening about their illness with the patient and his/her relatives. 2. Data concerning personal information and history of mild head injury were collected. 3. During 7.20–8.00 a.m., 3.1 The research assistant assessed the patient's capability for daily activities and the complications from mild head injury. 3.2 The patient received nursing care from staff nurses and the healthcare team according to the usual nursing care, which included giving instruction about medication-taking, observing signs and symptoms of complications such as headache, increased drowsiness, nausea, vomiting, and blurred vision, and wound care, and received individual teaching plan for patients with mild head injury by the researcher. The assessment for the patient's impairments, daily activities concerning movements and postural changes, self-care, communication, and complications from posttrauma concussion and epileptic symptoms. The patient's problems would be diagnosed and the individual teaching

Table 1: The process of data collection in the control and the experimental group(Cont.)

Control Group	Experimental Group
	planned was made. The implementation of teaching plan related to their particular problems such as having muscle exercise, conducting daily activities, communicating with either verbal or body language, muscle relaxation, including assessment and making plan for complication management. The evaluation and plan would be developed. In the teaching process, the patients' family had role to advocate and promote the patient to be able to practice daily activities and manage the complications. 4. During 4.00-6.00 p.m., the researcher delivered additional care for the patient's particular problems according to the instructive plan for patients with mild head injury.
Day 2 The patient received care from staff nurses and health care team according to the usual nursing care, including instruction about medication-taking and observation of abnormal symptoms such as headache, drowsiness, nausea, vomiting and blurred vision, and wound care.	**Day 2** The patient received care from staff nurses and health care team according to the usual nursing care, including instruction about medication-taking and observation of abnormal symptoms such as headache, drowsiness, nausea, vomiting and blurred vision, and wound care. During 7.00-8.00 a.m., the researcher delivered care in relation to the individual patient's problems

Table 1: The process of data collection in the control and the experimental group(Cont.)

Control Group	Experimental Group
	according to the instructive plan for patients with mild head injury. The patient's capability for daily activities and symptoms of complications were assessed to identify impairments and to make diagnosis about the possible problems at home. The teaching plan was then revised with additional goals and activities aiming to solve the patient's problems. The practice involved muscle exercise, daily activities performance, communications in verbal and body language, and muscle relaxation, Including the evaluation and making plan for complications management. The patients' family advocate and promote the patient to be able to practice daily activities and manage the complications. 2. During 4.00-6.00 p.m., the researcher delivered discharge care relative to the patient's impairments or problems according to the instructive plan for patients with mild head injury.
Day 3 (2nd Assessment) 1. During 7.00-8.00 a.m., The research assistant assessed the patient's capability for daily activities and the complications from mild head injury. 2. The patient received the usual nursing	**Day 3 (2nd Assessment)** 1. During 7.00-8.00 a.m., The research assistant assessed the patient's capability for daily activities and the complications from mild head injury. 2. The patient received the usual nursing

Table 1: The process of data collection in the control and the experimental group(Cont.)

Control Group	Experimental Group
care from staff nurse and health care team. The care included giving instruction about medication-taking and observing abnormal symptoms, such as headache, drownsiness, vomiting, and blurred vision, and wound care.	care from staff nurse and health care team. The care included giving instruction about medication- taking and observing abnormal symptoms, such as headache, drownsiness, vomiting, and blurred vision, and wound care. The researcher delivered nursing care according to the individual teaching plan for patients with mild head injury. The care was given in response to the patient's problems with an additional instruction for home practice, including muscle exercise, performing daily activities, verbal communication and communicating with body language, and muscle relaxation. The patient also learned more about assessment and planning of communication management. The patients' family advocate and promote the patient to be able to practice daily activities and manage the complications. The researcher delivered nursing care according to the individual teaching plan until the patient was discharge from the hospital.
One week after discharge (3 rd assessment) 1. The researcher assessed the patient's capability for daily activities and the complications from mild head injury	**One week after discharge (3 rd assessment)** 1. The researcher assessed the patient's capability for daily activities and the complications from mild head injury.

Table 1: The process of data collection in the control and the experimental group(Cont.)

Control Group	Experimental Group
2. Summary of result	2. Summary of result

Protection of Human Subjects

The researcher of this study is fully aware of research ethics thus the obtained data were used with respect to the subjects' pride and value and with an awareness of possible impact. The identity of the subjects, therefore, was kept confidential. The researcher did not use her power in the nursing role to utilize the data for any other purposes beyond the scope of this study. Moreover, various issues concerning research ethics were fully observed, as described below.

1. The subjects' consent. The researcher gave opportunities for the subjects of this study to fully exercise their rights by giving information about the study in the consent form (Appendix B). The information included the objectives of the study, the use of data, freedom in participating in and withdrawing from the study, which would not have any effect on the treatment or care given to the patients. The patients could ask for more information or ask any questions should they have any doubt.

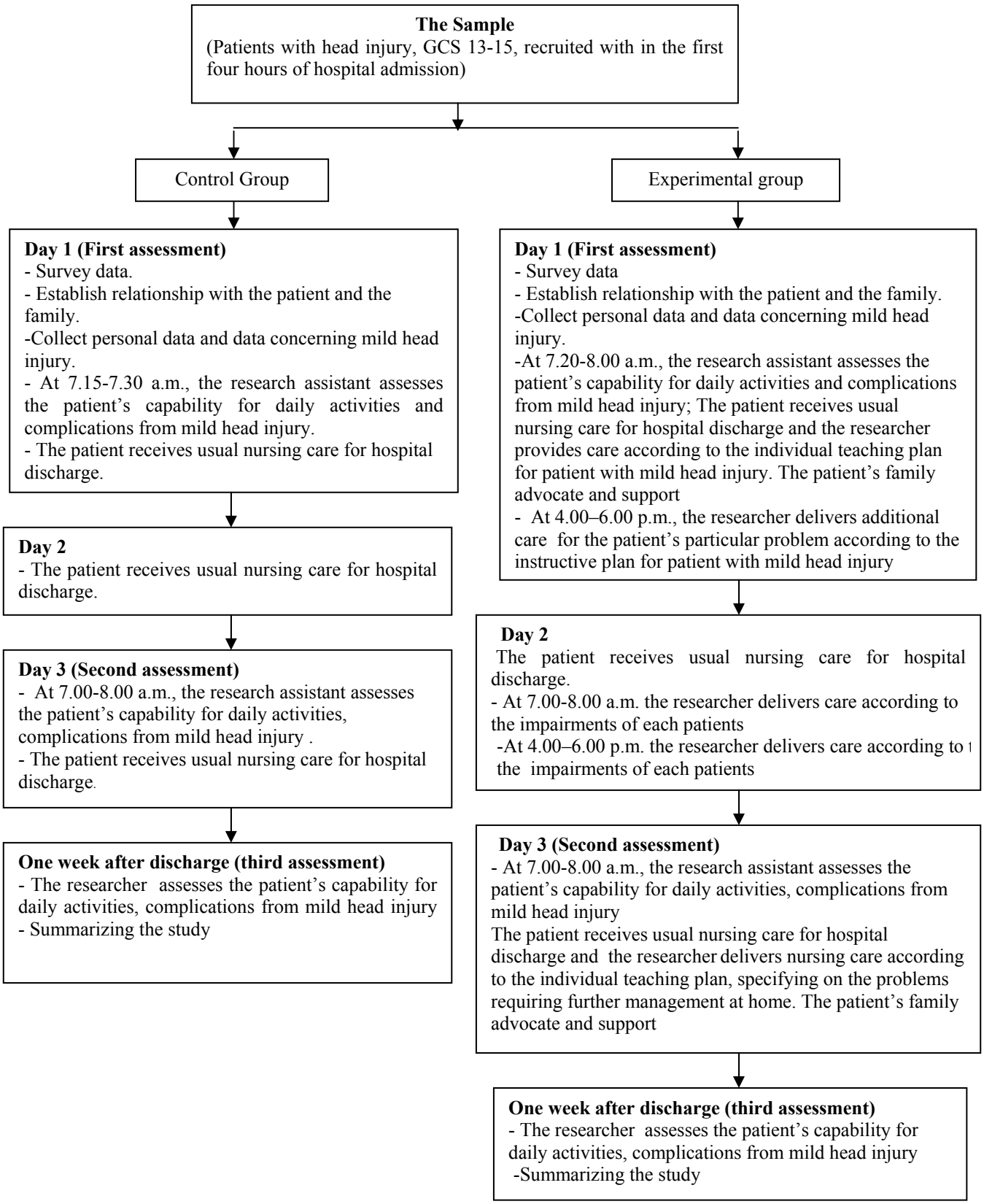
2. Confidentiality of the data. The collected data might involve some information that the patients would like to keep confidential; therefore, the researcher would treat all obtained data with confidentiality and did not reveal the patients' stories to anybody beyond the scope of this study.

Data Analysis

The obtained data were analyzed with the SPSS computer program, as follows:

1. Data concerning the demographic characteristics and history of mild head injury were analyzed with the frequency count method and the result was expressed in percentage, mean, and standard deviation values.

2. The independent t-test was used to compared the mean values of capability for daily activities and complications in patients with mild head injury in the control group with those of the experimental group.



The process of data collection

CHAPTER 4
RESULTS

This research was a study of the effect of individual teaching on capability for daily activities and complications in patients with mild head injury. The sample was composed of 40 male and female patients with mild head injury who were admitted into the 2 general surgical wards of Somdej Phrabuddhalertlar Hospital, Samut Songkram Province; among these, 20 patients were assigned into the control group and the other 20 were in the experimental group. The results of data analysis are present in this chapter in the following order:

Part 1: Demographic characteristics of the sample;

Part 2: History of mild head injury;

Part 3: Comparison of average scores of capability for daily activities between the control and the experimental group before and after the intervention on discharge day and at one week after discharge;

Part 4: Comparison of average scores of complications between the control group and the experimental group before and after the intervention on the discharge day and at one week after discharge;

Part 1: Demographic characteristics of the samples

Table 2 : Number and percentage of the samples classified by gender, age, marital status, education level, occupation, income, income sufficiency, diagnosis, duration of hospital admission, and glasgow coma score on admission in the control group and the experimental group (n=40)

Characteristic	Control group		Experimental group	
	Number(n=20)	%	Number(n=20)	%
Gender				
Male	13	65	12	60
Female	7	35	8	40
Age(Year)				
15-25	10	50	7	35
26-40	6	30	4	20
41-55	4	20	6	30
>56	-	-	3	15
	$\bar{X}$ = 28.25	S.D. = 12.21	$\bar{X}$ = 35.15	S.D. = 15.20
Marital status				
Single	7	35	7	35
Married	10	50	10	50
Divorced/ Widowed/ Separated	3	15	3	15
Educational level				
No schooling	1	5	-	-
Primary	7	35	11	55
Secondary/ Non Formal school	10	50	7	35
Vocational/ Diploma degree	1	5	2	10
Bachelor's degree	1	5	-	-
Occupation				
None	2	10	2	10
Housework	1	5	1	5

Table 2 : Number and percentage of the samples classified by gender, age, marital status, education level, occupation, income, income sufficiency, diagnosis, duration of hospital admission, and glasgow coma score on admission in the control group and the experimental group (n=40) (Cont.)

Characteristic	Control group		Experimental group	
	Number(n=20)	%	Number(n=20)	%
Employee	15	75	12	60
Trader	1	5	3	15
Agricultural worker/ farmer	-	-	2	10
Government official	1	5	-	-
Income (Baht/month)				
< 3000	8	40	8	40
3,001-6,000	8	40	8	40
6,001-10,000	2	10	4	20
> 10,000	2	10	-	-
	$\bar{X}$=5170.00	S.D.=4915.51	$\bar{X}$= 4645.50	S.D.=2784.26
Income sufficiency				
Enough with some saving	3	15	1	5
Enough without saving	8	40	15	75
Have debts	9	45	4	20
Diagnosis				
Head injury				
-MCA	11	55	13	65
-car accident	2	10	2	10
assault	5	25	3	15
fall	1	5	1	5
falling from height	1	5	1	5

Table 2 : Number and percentage of the samples classified by gender, age, marital status, education level, occupation, income, income sufficiency, diagnosis, duration of hospital admission, and glasgow coma score on admission in the control group and the experimental group (n=40) (Cont.)

Characteristic	Control group		Experimental group	
	Number(n=20)	%	Number(n=20)	%
Duration of hospital admission (days)				
3-5	16	80	10	50
6-8	4	20	7	35
9-11	-	-	3	15
	$\bar{X}$ = 3.75	S.D.= 1.45	$\bar{X}$ = 5.90	S.D. = 2.25
Glasgow coma score on admission				
14	1	5	1	5
15	19	95	19	95

Table 2 Showed that there were 40 patients in this study. In both groups, there were males more than female at the ratio 1.9:1 in the control group and 1.5: 1 in the experimental group. The average age of patients in the control group was 28.25 years and in the experimental group was 35.15 years. Half of the subjects in both groups were married. Most patients in the control group were educated at a secondary level or received non-formal education where as more than 50 percent of those in the experimental group were educated at a primary level. More than half of the sample in both groups (75% in the control group and 60% in the experimental group) worked as employees. The average monthly income was 5,170 baht in the control group and 4,645 baht in the experimental group. For the adequacy of income, 45 percent of patients in the control group reported having debts whereas 75 percent of patients in the experimental group had adequate income but no saving. The patients from both groups were mostly diagnosed with head injury from motorcycle accidents (55% in the

control group and 65% in the experimental group), followed by physical assault (25% in the control group and 15% in the experimental group). The average duration of hospital admission in the control group was 3.75 and in the experimental group was 5.90 and nearly all of them were present with the Glasgow Coma Score on admission at 15 (95% in both groups).

Part 2: History of Mild Head Injury

Table 3: Number and percentage of the samples classified by history of head injury (n = 40)

History of head injury	Control group		Experimental group	
	Number(n=20)	%	Number(n=20)	%
Mechanism of head Injury				
Traffic accident	13	65	15	75
Fall from height	-	-	1	5
Physical assault	5	25	2	10
Fall	1	5	1	5
Sports/ Recreational activities	1	5	-	-
Impact of coconut falling	-	-	1	5
Lesion of injury				
Laceration of head skin	7	35	11	55
Swelling or bruised skin	9	45	7	35
Laceration on the face	4	20	2	10
Duration of unconsciousne				
5 minutes	-	-	2	10
15 minutes	1	5	1	5
30 minutes	1	5	-	-
45 minutes	2	10	-	-
Unknown	11	55	10	50
Did not lose consciousness	5	25	7	35
Level of consciousness				
Alert, able to give verbal response	19	95	19	95
Blurred, confused	-	-	1	5
Respond to stimuli	1	5	-	-

Table 3: Number and percentage of the samples classified by history of head injury (n = 40)(Cont.)

History of head injury	Control group		Experimental group	
	Number(n=20)	%	Number(n=20)	%
Pupils' size				
Left: normal	18	90	20	100
swollen eye	2	10	-	-
Right: normal	20	100	20	100
Brain stem reflex				
corneal reflex:				
normal	20	100	20	100
occulocephalic reflex:				
normal	20	100	20	100
Muscular movement				
Grade 5	14	70	17	85
Grade 4	6	30	3	15
Abnormal symptoms				
headache	16	80	18	90
giddiness	16	80	15	75
muscular spasm	1	5	-	-
blurred vision	3	15	3	15
double vision	2	10	1	5
nausea & vomiting	12	60	12	60
memory loss	7	35	10	50
dizziness	2	10	1	5
feeling unsteady	2	10	-	-
fatique	1	5	-	-

Referring to Table 3, the mechanism of head injury in the control group was mostly from traffic accident (65%), followed by fall (25%). For the experimental group, the mechanism of injury was mostly caused by traffic accident (75%), followed by physical assault (10%). The injury lesion in the control group was mostly swollen and

bruised skin (45%), followed by lacerations on the head (35%) whereas in the experimental group the lesions mostly found were lacerations on the head (55%), followed by swollen and bruised skin (35%). Most of the sample in both groups did not know the length of time that they lost consciousness (55% in the control group and 50% in the experimental group); nevertheless, 25 percent of the patients in the control group and 35 percent in the experimental group had not lost consciousness. Most patients in both groups were present with good consciousness, alert and able to answer questions verbally (95%). Also, the majority of them had normal pupils' reaction to light and normal brain stem reflexes. The muscular movement of most patients in both groups was at grade 5 (70% in the control group and 85% in the experimental group). For other abnormal symptoms, patients in the control group reported headache and giddiness mostly, followed by nausea and vomiting (80% and 60%, respectively) whereas those in the experimental group reported headache mostly, followed by giddiness (90% and 75%, respectively).

Part 3 : Comparison of average scores of capability for daily activities between the control and the experimental group before and after the intervention on the discharge day and at one week after discharge

Table 4 : Comparison of average scores of capability for daily activities between the control group and the experimental group before and after the intervention on the discharge day and at one week after discharge, using statistical independent t-test (n=40)

Capability for daily activities	Control group		Experimental group		t
	Mean	S.D.	Mean	S.D.	
Before the intervention	42.50	5.73	39.55	7.90	1.35^{ns}
On discharge day	46.65	2.18	47.95	0.22	-2.64*
One week after discharge	47.60	0.82	48.00	0.00	-2.17*

ns = non-significant; *P < .05

Table 4 demonstrates insignificant difference in the average scores of capability for daily activities before the intervention between the control and the experimental group (P >.05). However, the average scores of capability for daily activities of the experimental group is higher than the scores of the control group on discharge and one-week after discharge, with a statistically significant difference. (P < .05).

Part 4 : Comparison of average scores of complications between the control and the experimental group before and after the intervention on the discharge day and at one week after discharge

Table 5 : Comparison of average scores of complications between the control group and the experimental group before and after the intervention on the discharge day and at one week after discharge, using statistical independent t-test (n=40)

Complications	Control group		Experimental group		t
	Mean	S.D.	Mean	S.D.	
Before the intervention	3.45	1.05	2.75	1.16	3.42*.
On discharge day	1.90	1.29	1.80	1.05	0.26^{ns}
One week after discharge	2.40	1.78	1.45	0.99	2.07*

ns = non-significant; *P < .05

Referring to table 5, the average scores of complications on discharge of the control and the experimental group are not significantly different (P>.05). The complication scores of the two groups before the intervention and at one-week after discharge are significantly difference (P< .05).

CHAPTER 5
DISCUSSION

The purpose of this study was to examine the capability for daily activities and complications in patients with mild head injury who received care with individual teaching for patients with mild head injury in comparison with those who received usual nursing care. The sample of this study was composed of males more than females; the majority of the sample were aged between 15 and 25 years; they were mostly married and were educated at the primary level to secondary level or received non-formal education. Most subjects were employees and had monthly incomes approximately 3,000–6,000 baht, which were sufficient for them but not enough for saving. The duration of hospital stay was mostly between 3–5 days and the patients' coma score was 15 on admission The discussion of result is presented according to the objective of this study in the following two parts:

Part 1: Comparison of capability for daily activities between patients with mild head injury receiving usual nursing care and individual teaching and in those receiving usual nursing care;

Part 2: Comparison of complications in patients with mild head injury receiving usual nursing care and individual teaching and in those receiving usual nursing care.

Part 1: Discussion related to hypothesis 1

The results of this study support Hypothesis 1, as the average score of capability for daily activities in the experimental group after the intervention was higher than the corresponding average score in the control group. Referring to Table 4, the scores of capability for daily activities before the intervention in both groups are similar whereas the scores on discharge and at one week after discharge are evidently different. The patients with mild head injury had some remaining impairments such as movement and postural changes, self-care, and communication, which show decreased capability for daily activities (Hickey,1997; Weisberg, 1996). This research found that

the average score of capability for daily activities in the experimental group after the intervention was higher than the average score of the control group These results are due to the patients received usual nursing care and individual teaching. Each subject was given structured teaching at his/her bedside. The patients' problems were assessed to identify impairments every day and the researcher provided care according to the patients' particular problem. The patients also learned and practiced various skill for daily activities by the patients' family advocate and promote the patient to be able to practice daily activities. Therefore, the investigation for existing impairment and developing a nursing plan at an early stage can help patients in returning to daily routines faster (Veltman, et al.,1993).

Regarding capability for daily activities in aspect of movement and postural changes, it was found that before the intervention patients in the experimental group could get up or down the bed better than those in the control group (Mean = 3.45; S.D. = 0.89 in the experimental group versus Mean = 3.40; S.D. = 0.68 in the control group). On the discharge day, patients in the experimental group could perform all activities in this aspect better than those in the control group (Mean = 4.00; S.D. = 0.00 in the experimental group versus Mean = 3.95; S.D. = 0.22 from item 1–3 and Mean = 3.35, S.D. = 0.93 from item 4, in the control group). At one week after discharge patients in the experimental group presented the same score of capability for mobility and postural changes (Mean = 4.00; S.D. = 0.00) whereas those in the control group demonstrated decreased capability in walking up and down the stairs (Mean = 3.95; S.D. = 0.22), as shown in Table 6. The practice includes going up and down the bed, sitting down and standing up from a regular chair, going to the bathroom, walking on a flat floor, and walking up and down the stairs. these activities promote patients' capability in moving from place to place with safety and independency (Kyanko, 2000; Liddel, 1996).

For self-caring capability, it was found that before the intervention patients in the experimental group had less capability in performing all self-care activities than those in the control group (Mean = 3.15, 3.10, 3.15, 3.20, 3.80; S.D. = 0.88, 0.97, 1.04, 0.95, 0.52 in the experimental group comparing to Mean = 3.35, 3.55, 3.45, 3.40, 4.00; S.D. = 0.81, 0.60, 1.00, 0.99, 0.00 in the control group). On the discharge day, however, patients in the experimental group demonstrated higher scores of capability

in performing almost all activities in this domain with an exception of excretory control of which both groups achieved the same score (in the experimental group, item 5: Mean = 3.95, S.D. = 0.22; item 6–9: Mean = 4.0, S.D. = 0.00; in the control group, item 5 Mean = 3.85, S.D. = 0.37; item 6–8: Mean = 3.95, S.D. = 0.22; and item 9: Mean = 4.0, S.D. = 0.00). According to Weisberg, (1996:) the pathology in prefrontal cortex cause the patients lack interest in themselves. An encouragement for the management of self-care involve training the patients to take care of their personal hygiene and to do various activities.(Hoeman, 1996) At one week after discharge, both groups presented the same score of capability for self-caring acitivities (item 5–8: Mean = 4.0 ; S.D. = 0.00), with an exception of excretory control of which the experimental group achieved higher score of capability in comparison to the score of the control group (in the experiment group, item 9: Mean = 4.00, S.D. = 0.00; in the control group, item 9: Mean = 3.85, S.D. = 0.67), as shown in Table 6.

The score of capability for communication before the intervention of both groups was the same in the item concerning making choices of communication techniques (Mean = 3.95; S.D. = 0.22). In naming things and giving verbal responses patients in the experimental group demonstrated lower capability than those in the control group (Mean = 3.85, 3.90; S.D. = 0.49, 0.31 in the experimental group and Mean = 3.95; S.D. = 0.22 in the control group). On the discharge day, however, patients in the experimental group presented higher capability in these two activities, in comparison with patients in the control group (Mean = 4.00; S.D. = 0.00 in the experimental group and Mean = 3.95, 3.80; S.D. = 0.22, 0.62 in the control group) whereas the scores of capability in making choices of communication techniques of the two group remained similar (Mean = 4.00; S.D.= 0.00). Likewise, at one week after discharge patients in the experimental group achieved scores of capability in naming things and giving verbal responses higher than those in the control group (Mean = 4.00; S.D. = 0.00 in the experimental group and Mean = 3.90, 3.90; S.D. = 0.31, 0.45 in the control group) while the capability in making choices of communication techniques of both groups was still the same (Mean = 4.00, S.D. = 0.00). The psychoneurological impairment disturbs the patients' ability to seek proper words for interacting with other people (Joseph, 1996) and for using appropriate language in their communication (Pokakul, et al., 2001). the management of

communication includes speaking practice by using short and simple words, learning to the speak simple sentences slowly and clearly to enhance understanding in their communication (Carpenito, 1993; Hickey, 1997). These results are probably due to disparities in education levels of patients in each group thus leading to different understanding of the rehabilitation plan and, as a result, different performances. In addition, the head injury in each patient has different pathological effects, depending on the size and location of the injury; therefore, the disorders and recovery period differ accordingly. Recovery from head injury is gradual and usually takes about six months (Kay, 1996). Nevertheless, a rehabilitation program for patients with head injury can quicken the process of recovery (New Zealand Neurological Foundation, 2005). In this study, patients in the experimental group had learned and practiced various skills for daily living according to the handbook for patients with mild head injury. The researcher visited them until on the discharge day and one week after discharge. The result of individual teaching found that the patient would be satisfaction, good relationship, and accumtom development. Moreover, after the patients were discharged from the hospital they could consult by telephone if they could not manage their problems. Accordingly, the patients in the experimental group were likely to recover from the injury sooner.

Part 2: Discussion related to hypothesis 2

The second hypothesis of this study stated that the score of complications in the experimental group should be lower than the corresponding score in the control group. Data in Table 5 show that the scores of complications in both groups were similar on the discharge day. However, it is evident that the scores before the intervention and at one week after discharge were different, as shown in Table 5. The advantage of individual teaching was owing to the researcher visited the patients and provided care according to the individual teaching plan until the patients trusted and could understand their problems. They also learned about assessment and planning of complications management before the problem would be occurred. The patients' family advocate and promote the patient to be able to manage the complications

Prior to the intervention patients in the experimental group reported higher score than those in the control group in response to the item concerning headache (Mean = 0.80, S.D. = 0.41 in the experimental group; Mean = 0.75, S.D. = 0.44 in the

control group). On the discharge day patients in the experimental group reported higher scores of headache and irritability, in comparison with the scores of those in the control group (Mean = 0.60, 0.20; S.D. = 0.50, 0.41 in the experimental group; and Mean = 0.35, 0.00; S.D. = 0.49, 0.00 in the control group). At one week after discharge, however, the average scores of complications in the experimental group were lower than the scores in the control group in almost every item, and similar scores between the two groups were found only in the items concerning double vision and insomnia (Mean = 0.50, 0.45, 0.00, 0.10, 0.005, 0.20, 0.15; S.D. = 0.51, 0.51, 0.00, 0.31, 0.20, 0.41, 0.37 in the experimental group; and Mean = 0.60, 0.70, 0.20, 0.10, 0.40, 0.20, 0.20; S.D. = 0.50, 0.47, 0.41, 0.31, 0.50, 0.41, 0.41 in the control group).

This is probably because of disparities in the brain disorders, as well as the mechanism of injury, of patients in each group. In addition, post-trauma concussion may induce strains to pain receptors in head and neck muscles, causing headache in the first two weeks after the injury even though the brain matters is not injured (Urich & Canal, 2001). The patients may also have headache from stress and exhaustion afterward (Mason-Riseborough, 1998). Moreover, pathologic conditions in the amydala section may induce irritable moods and loss of emotional control (Banarroch et al., 1999). These symptoms will gradually improve within two weeks and early rehabilitation will quicken the patients' recovery. Therefore, despite their learning about complication management, patients in the experimental group of this study still needed some times to recover from the injury. Therefore, they still had headache and irritability after the intervention. At one week after discharge, nevertheless, patients in the experimental group achieved average scores of complications lower than those in the control group in almost every item, with exceptions in items 4 and 6. This result indicates that the individual teaching plan for patients with mild head injury could help the patients to understand their problems and to be able to manage the complications

In conclusion, the rehabilitation plan for patients with head injury emphasized patients' learning and practicing skills for daily living with an objective to promote and recover their capability and potentiality. The individual teaching plan for patients with mild head injury could help the patients to develop and regain their capability

because the learning and practicing quickened their recovery. Consequently, the patients were able to conduct daily activities concerning movement and postural changes, perform self-care, and manage communication problems. They also had less complication from the injury.

CHAPTER 6
CONCLUSION

This study was a quasi-experimental design, aiming to examine the effect of individual teaching on capability for daily activities and complications in patients with mild head injury. The sample was composed of 40 male and female patients with mild head injury who were admitted for medical care at the 2 general surgical wards of Somdej Phrabuddhalertlar Hospital, Samut Songkram Province. The sample was divided into an experimental group and a control group with 20 patients in each group. Patients in the control group received usual care whereas those in the experimental group received individual teaching by the researcher. Data were collected with the staff nurses, as a research assistant, assessing the patients' conditions on admission and on the discharge day. The researcher assessed the patients again at one week after discharge. Data collection was conducted from November 2003 to May 2004.

The sample was selected with purposive sampling method. Data were collected from the control group first until all 2 subjects were completely assessed and the study was then continued with the 20 subjects in the experimental group.

The research instruments was composed of 1) intervention instruments, comprising instruction plan for patients with mild head injury and the handbook for patients with mild head injury; and 2) data collection instruments, comprising the record forms for demographic characteristics, history of mild head injury, and assessment of capacity for daily activities and complications in patients with mild head injury.

The study was conducted as summarized below.

1. The patients whose characteristics met the inclusion criteria gave consent to participate in the study and signed the consent letter containing information about the protection of human subjects.

2. Data were collected from subjects in the control group. After receiving gave consent from a patient, the researcher recorded data concerning the patient's

demographic characteristics and history of mild head injury. The research assistant assessed the patient's capability for daily activities and post-trauma complications – the first assessment for the study. The patient then received usual nursing care from staff nurses and other members of the healthcare team.

3. On the discharge day, the research assistant conducted the second assessment of the patient's capability for daily activities and post-trauma complications. The patient was then prepared for the discharge with usual nursing care plan from staff nurses.

4. At one week after discharge, the researcher visited the patient at home and conducted the third assessment of capability for daily activities and post-trauma complications. The study with that patient was then concluded.

5. Data were collected from the experimental group. When a selected patient gave consent, the researcher recorded demographic characteristics and his or her history of mild head injury. The research assistant assessed the patient's capability for daily activities and post-trauma complications for the first time. The patient then received usual nursing care and nursing care according to the individual teaching designed for patients with mild head injury by the researcher. The patient was taught how to perform daily activities regarding movement and postural changes, self-care, and communication. They were also taught how to manage complications from mild head injury such as headache, dizziness or vertigo, tiredness, double vision, irritability, anxiety, emotional lability, insomnia, impairments in memory and concentration, learning problems, and epileptic symptoms.

6. On the discharge day, the research assistant conducted the second assessment of capability for daily activities and post-trauma complications. The researcher continued providing care with individual teaching designed for patients with mild head injury.

7. After the patient was discharged from the hospital for one week, the researcher visited him or her at home and conducted the third assessment of capability for daily activities and post-trauma complications. The study in the experimental group was then concluded.

8. Data concerning demographic characteristics and history of mild head injury were analyzed with frequency count method and the results were calculated for

percentage, mean, and standard deviation. The average scores of capability for daily activities and complications before the intervention, on the discharge day, and at one week after discharge were compared between the experimental group and the control group, using the independent t-test. The results of this study can be summarized as follows:

8.1 On the discharge day and at one week after discharge, the average score of capability for daily activities of the experimental group was higher than that of the control group ($p<.05$).

8.2 The average score of complications of patients in the experimental group were lower than the corresponding score of the control group ($p<.05$).

Implication and Recommendations

Implications for nursing practice

1. Apply the individual teaching for patients with mild head injury as part of nursing care for these patients in surgical ward;

2. The individual teaching should also be able to deliver proper care in response to the demand, teach and give advice to the patients and their families about possible problems and the management of such problems in order to quicken the patient's recovery.

Implications for Further studies

1. The sample should be followed up for an extensive period of 1–3 months so that their capability for daily activities and complications after receiving care according to individual teaching for patients with mild head injury could be evaluated.

2. A study with the same design as this one should be conducted with the sample of a larger size.

3. Similar research should be carried out with rehabilitation with moderate head injury with GCS equal 13-15

4. A study with the same design as this one should be limited the research assistants and they should be assess all times. The researcher should only the person who provide knowledge and give advice to the patients.

Limitations of the studies

1. The researcher assessed the patient's capability for daily activities and post-trauma complications for the third assessment. Thus, the patients may be considerate of another's feeling to answer true, which may have affected to bias of measurement.

2. Six staff nurses were prepared to be the research assistants. Among these the research assistants, some of them were not examined with the interrater reliability. Therefore, the results from the assessment by each of the research assistant might affected the bias in measurement

3. In this study the advantages of the experimental group included learning, problem solving, and complications management, because length of stay in both groups were different. The average duration of hospital admission in the experimental group was longer than in the control group. There fore, it was possible that it may have influenced the results in this study.

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APPENDIX

APPENDIX A
LIST OF EXPERTS

There are six experts who have validated the content of research instrument. There are:

1. Sqn. Ldr. Soparn Pothaya
   The neuro surgical intensive care unit (staff nurse) Bumibol Adulyadej Hospital, Medical Directorate, Royal Thai Air Force, Bangkok, Thailand.
2. Ass t. Prof. Dr. Orapan Thosingha
   Department of Surgical Nursing, Faculty of Nursing, Mahidol University.
3. Dr. Ketsarin Utriyaprasit
   Department of Surgical Nursing, Faculty of Nursing, Mahidol University.
4. Asst. Prof. Vipawan Chewachutirungruang
   Department of Orthopedics Surgery, Faculty of Medicine, Siriraj Hospital, Mahidol University
5 Dr. Watchara Chuncharoenkit
   Division of Surgical Department, Somdej Phrabuddhalertlar Hospital.
6. Mrs. Uraiwan Taerungruang
   Department of Surgical and Surgical Orthopedics Nursing, Faculty of Medicine, Siriraj Hospital, Mahidol University.

APPENDIX B
Conset informatiom form

คำชี้แจงสำหรับผู้ป่วยและการคุ้มครองสิทธิของผู้ป่วย (สำหรับกลุ่มทดลอง)

ดิฉันชื่อ นางสาวโสพิน ศรีสมโภชน์ เป็นนักศึกษาหลักสูตรพยาบาลศาสตรมหาบัณฑิต สาขาวิชาการพยาบาลผู้ใหญ่ คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล กำลังทำวิทยานิพนธ์เรื่อง “ผลของการสอนรายบุคคลต่อความสามารถในการปฏิบัติกิจวัตรประจำวันและภาวะแทรกซ้อนในผู้ป่วยบาดเจ็บที่ศีรษะระดับไม่รุนแรง” มีความประสงค์ที่จะขอความร่วมมือจากท่าน เพื่อเข้าร่วมการวิจัย ดังกล่าว โดยการตอบแบบสอบถามเกี่ยวกับข้อมูลทั่วไป

ผู้วิจัยจะติดตามเยี่ยมผู้ป่วยทุกวันในเวลา 6.00- 8.00 น และ 16.00-18.00 น ตลอดระยะเวลาที่อยู่โรงพยาบาล เพื่อฝึกปฏิบัติกิจวัตรประจำวันให้ความรู้และคำแนะนำเกี่ยวกับแนวทางในการประเมินและการจัดการเกี่ยวกับภาวะแทรกซ้อน ตอบปัญหา รับฟัง และให้คำปรึกษาแก่ผู้ป่วย และทำการประเมินความสามารถในการปฏิบัติกิจวัตรประจำวันและภาวะแทรกซ้อน จำนวนทั้งหมด 3 ครั้ง โดยในขณะอยู่โรงพยาบาลผู้ช่วยวิจัยจะประเมินจำนวน 2 ครั้งได้แก่ เมื่อแรกรับไว้ในการศึกษาและวันจำหน่าย และผู้วิจัยจะประเมินอีก 1 ครั้ง ในสัปดาห์ที่ 1 หลังจำหน่าย การเข้าร่วมการวิจัยนี้ ท่านสามารถที่จะตอบตกลงหรือปฏิเสธที่จะเข้าร่วมการวิจัยได้ตลอดเวลา การปฏิเสธของท่านจะไม่มีผลใดๆต่อการรักษาทั้งสิ้น คำตอบที่ท่านตอบจะไม่มีถูกหรือผิด หากมีปัญหาหรือข้อสงสัย ดิฉันยินดีที่จะให้การช่วยเหลือทุกประการ ข้อมูลในการตอบแบบสอบถามจะถูกเก็บไว้เป็นความลับ ไม่นำมาเปิดเผยชื่อ และจะนำผลการตอบที่ได้รับไปสรุปเป็นประโยชน์ทางการศึกษาเท่านั้น

ขอขอบคุณที่กรุณาให้ความร่วมมือ

โสพิน ศรีสมโภชน์
ผู้วิจัย

ลายเซ็น……..
ผู้เข้าร่วมการศึกษา

คำชี้แจงสำหรับผู้ป่วยและการคุ้มครองสิทธิของผู้ป่วย (สำหรับกลุ่มควบคุม)

ดิฉันชื่อ นางสาวโสพิน ศรีสมโภชน์ เป็นนักศึกษาหลักสูตรพยาบาลศาสตรมหาบัณฑิต สาขาวิชาการพยาบาลผู้ใหญ่ คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล กำลังทำวิทยานิพนธ์เรื่อง “ผลของการสอนรายบุคคลต่อสามารถในการปฏิบัติกิจวัตรประจำวันและภาวะแทรกซ้อนในผู้ป่วยบาดเจ็บที่ศีรษะระดับไม่รุนแรง” มีความประสงค์ที่จะขอความร่วมมือจากท่าน เพื่อเข้าร่วมการวิจัยดังกล่าว โดยการตอบแบบสอบถามเกี่ยวกับข้อมูลทั่วไป

ผู้วิจัยจะติดตามเยี่ยมผู้ป่วยในวันแรกรับ และวันจำหน่าย ในขณะอยู่โรงพยาบาล และทำการประเมินความสามารถในการปฏิบัติกิจวัตรประจำวันและภาวะแทรกซ้อน จำนวนทั้งหมด 3 ครั้ง โดยในขณะอยู่โรงพยาบาลผู้ช่วยวิจัยจะประเมิน จำนวน 2 ครั้ง ได้แก่ เมื่อแรกรับไว้ในการศึกษาและวันจำหน่าย และผู้วิจัยประเมินอีก 1 ครั้ง ในสัปดาห์ที่ 1 หลังจำหน่าย การเข้าร่วมการวิจัยนี้ ท่านสามารถที่จะตอบตกลงหรือปฏิเสธที่จะเข้าร่วมการวิจัยได้ตลอดเวลา การปฏิเสธของท่านจะไม่มีผลใดๆต่อการรักษาทั้งสิ้น คำตอบที่ท่านตอบจะไม่มีถูกหรือผิด หากมีปัญหาหรือข้อสงสัย ดิฉันยินดีที่จะให้การช่วยเหลือทุกประการ ข้อมูลในการตอบแบบสอบถามจะถูกเก็บไว้เป็นความลับ ไม่นำมาเปิดเผยชื่อ และจะนำผลการตอบที่ได้รับไปสรุปเป็นประโยชน์ทางการศึกษาเท่านั้น

ขอขอบคุณที่กรุณาให้ความร่วมมือ

โสพิน ศรีสมโภชน์
ผู้วิจัย

ลายเซ็น…….
ผู้เข้าร่วมการศึกษา

APPENDIX C
Instruction plan for patients with mild head injury

คู่มือการให้ความรู้สำหรับผู้ป่วยบาดเจ็บที่ศีรษะระดับไม่รุนแรง

วัตถุประสงค์	เพื่อให้ผู้ป่วยบาดเจ็บที่ศีรษะระดับไม่รุนแรง สามารถพัฒนาทักษะในการปฏิบัติกิจวัตรประจำวันได้อย่างมีประสิทธิภาพ และป้องกันภาวะแทรกซ้อนเกี่ยวกับกลุ่มอาการภายหลังศีรษะได้รับความกระทบกระเทือนและอาการชัก
กลุ่มเป้าหมาย	ผู้ป่วยบาดเจ็บที่ศีรษะระดับไม่รุนแรงที่ได้รับเลือกเป็นกลุ่มทดลอง จำนวน 20 ราย
สถานที่	หอผู้ป่วยศัลยกรรมชาย ศัลยกรรมหญิง โรงพยาบาลสมเด็จพระพุทธเลิศหล้า จังหวัดสมุทรสงคราม
วิธีการ	การสอนข้างเตียงผู้ป่วย
ระยะเวลา	20 นาที
ผู้วิจัย	นางสาวโสพิน ศรีสมโภชน์

วัตถุประสงค์เชิงพฤติกรรม	เนื้อหา	กิจกรรมการสอน	สื่อการสอน	การประเมินผล
1. ผู้ป่วยสามารถฝึกทักษะการปฏิบัติกิจวัตรประจำวันและการจัดการกับภาวะแทรกซ้อนได้	การบาดเจ็บที่ศีรษะระดับไม่รุนแรง หมายถึง การบาดเจ็บที่ศีรษะในระดับเล็กน้อย อาจไม่ถึงกับหมดสติหรือหมดสติในระยะเวลาสั้นๆน้อยกว่า 30 นาที ผู้ป่วยรู้สึกตัวดี อาจมีความพิการหลงเหลือในด้านการใช้ภาษาพูดการสื่อสาร การทรงตัว ความจำไม่ดี บุคลิกภาพเปลี่ยนแปลง แต่สามารถช่วยเหลือตนเองในการทำกิจวัตรประจำวันและเดินทางไปในที่สาธารณะได้ การได้รับบาดเจ็บที่ศีรษะระดับไม่รุนแรง อาจทำให้เกิดภาวะแทรกซ้อนจากกลุ่มอาการภายหลังศีรษะได้รับความกระทบกระเทือนและอาการชักได้ การเตรียมความพร้อมก่อนจำหน่ายผู้ป่วยกลับบ้านโดยฝึกทักษะการปฏิบัติกิจวัตรประจำวันและการจัดการกับภาวะแทรกซ้อนที่เกิดขึ้นจะช่วยให้ผู้ป่วยสามารถพัฒนาศักยภาพการดูแลตนเองได้อย่างต่อเนื่องและลดภาวะแทรกซ้อนที่เกิดขึ้นได้ **ความสามารถในการปฏิบัติกิจวัตรประจำวันของผู้ป่วยบาดเจ็บที่ศีรษะระดับไม่รุนแรง** หมายถึงกิจกรรมที่ผู้ป่วย สามารถกระทำเพื่อการดูแลตนเอง เป็นประจำทุกวัน ประกอบด้วย การปฏิบัติกิจวัตรประจำวันด้วยตนเอง 3 ด้านได้แก่ การเคลื่อนไหวและการเปลี่ยนท่า การดูแลตนเอง และการโต้ตอบสื่อสาร	- ผู้วิจัยเข้าพบผู้ป่วยที่ข้างเตียงเป็นรายบุคคล -สร้างสัมพันธภาพกับผู้ป่วยโดยการกล่าวทักทายแนะนำตนเองแก่ผู้ป่วยและแจ้งวัตถุประสงค์ในการสอนข้างเตียงให้ผู้ป่วยทราบ		

วัตถุประสงค์เชิงพฤติกรรม	เนื้อหา	กิจกรรมการสอน	สื่อการสอน	การประเมินผล
2……	**ด้านที่ 1 การเคลื่อนไหวและการเปลี่ยนท่า**	……	……	……
	……	……	……	……
3……	**ด้านที่ 2. การดูแลตนเอง**	……		……
	……	……		……
4……	**ด้านที่ 3. การโต้ตอบสื่อสาร**			……
	……			
	การจัดการกับภาวะแทรกซ้อน	……		……..
	……	……		……
	……			
5……	**กลุ่มอาการภายหลังศีรษะได้รับความกระทบกระเทือน**			
	……	……	……	……
	……	……	……	……
	……	……	……	……
	……	……	……	……
6. ผู้ป่วยสามารถบอกวิธีปฏิบัติตนเพื่อป้องกันอาการชักได้ถูกต้อง	**อาการชัก**		……	
	……			
	……			
	……			

APPENDIX D
The handbook for patients with mild head injury

คู่มือการปฏิบัติกิจวัตรประจำวันและการจัดการเกี่ยวกับภาวะแทรกซ้อนสำหรับผู้ป่วยบาดเจ็บที่ศีรษะระดับไม่รุนแรง

จัดทำโดย นางสาวโสพิน ศรีสมโภชน์
นักศึกษาปริญญาโท
คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล

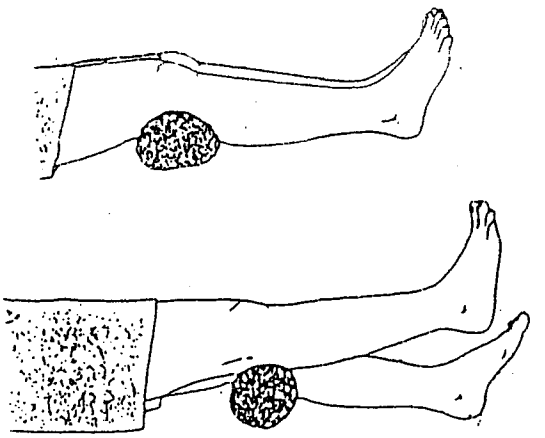
การได้รับบาดเจ็บที่ศีรษะระดับไม่รุนแรง ทำให้เกิดความบกพร่องในด้านร่างกาย พฤติกรรม อารมณ์ การรู้คิด จิตสังคม ซึ่งส่งผลกระทบต่อความสามารถในการปฏิบัติกิจวัตรประจำวัน และมีโอกาสเกิดภาวะแทรกซ้อนจากกลุ่มอาการภายหลังศีรษะได้รับความกระทบกระเทือนและอาการชักได้ การฝึกปฏิบัติกิจวัตรประจำวันและการจัดการเกี่ยวกับภาวะแทรกซ้อน จะช่วยให้สามารถฟื้นคืนสู่สภาพปกติได้เร็วขึ้น และลดภาวะแทรกซ้อนที่เกิดขึ้นได้

การฝึกปฏิบัติกิจวัตรประจำวัน

การฝึกปฏิบัติกิจวัตรประจำวัน ในด้านการเคลื่อนไหวและการเปลี่ยนท่า โดยฝึกออกกำลังกล้ามเนื้อให้แข็งแรง เพื่อรองรับ น้ำหนักในขณะลุก นั่ง ยืน เดิน

1. การเกร็งกล้ามเนื้อต้นขา

.....



วิธีการฝึก

1.1 นอนหงายราบ ขาเหยียดตรง

.....
.....
.....
.....

3. การสังเกตตนเองและสิ่งแวดล้อมที่กระตุ้นให้เกิดอาการชัก

.....
.....

APPENDIX E
Instrument for data collection

เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูล

ส่วนที่ 1 แบบบันทึกข้อมูลส่วนบุคคล

คำชี้แจง ให้ทำเครื่องหมาย ✓ ลงใน ( ) หน้าข้อความที่ตรงกับความเป็นจริงมากที่สุด

กลุ่ม ( ) ทดลอง ( ) ควบคุม

ผู้ป่วยรายที่.....

HN.....

วันที่รับไว้ในการศึกษา .....

วันที่จำหน่ายออกจากโรงพยาบาล.....

สำหรับผู้วิจัย

1. เพศ □

( ) ชาย ( ) หญิง

2. อายุ .....ปี

3. สถานภาพสมรส □

( ) โสด ( ) คู่

( ) หม้าย / หย่า / แยก

4. ระดับการศึกษา □

( ) ไม่ได้เรียนหนังสือ ( ) ประถมศึกษา

( ) มัธยมศึกษา ( ) ปริญญาตรี

( ) อื่นๆระบุ.....

..

.....

.....

9. ระยะเวลาที่รับการรักษาในโรงพยาบาล.....วัน

Glasgow coma scores เมื่อแรกรับ .....วันจำหน่าย.....

ส่วนที่ 2 แบบบันทึกเกี่ยวกับประวัติการบาดเจ็บที่ศีรษะระดับไม่รุนแรง

คำชี้แจง ให้ทำเครื่องหมาย ✓ ลงใน ( ) หน้าข้อความที่ตรงกับความเป็นจริงมากที่สุด

1. การประเมินเกี่ยวกับการบาดเจ็บ

1.1 กลไกการบาดเจ็บ

□ การกระแทก (Blunt) จากสาเหตุ

( ) อุบัติเหตุจราจร ( ) ตกจากที่สูง

( ) ถูกทำร้ายร่างกาย ( ) หกล้ม

( ) กีฬา นันทนาการ ( ) อื่นๆ ระบุ .....

□ ของมีคม (Penetrating) จากสาเหตุ

( ) กระสุนปืน

( ) ของมีคมทิ่มแทง

( ) อื่นๆ ระบุ .....

1.2 ร่องรอยของการบาดเจ็บที่ศีรษะ

( ) หนังศีรษะมีบาดแผลฉีกขาด

( ) มีรอยยุบของกะโหลกศีรษะ

( ) หนังศีรษะบวมช้ำ

( ) อื่นๆ ระบุ .....

1.3 ระยะเวลาที่หมดสติ

( ) รู้ ..... นาที ( ) ไม่รู้

.....

.....

2.5 อาการผิดปกติต่างๆ

( ) ปวดศีรษะ ( ) มึนงง

( ) เกร็งกระตุก ( ) ตาพร่ามัว

( ) มองเห็นภาพซ้อน ( ) คลื่นไส้ อาเจียน

( ) จำเหตุการณ์ไม่ได้ ( ) อื่นๆ ระบุ.....

ส่วนที่ 3 แบบประเมินความสามารถในการปฏิบัติตนของผู้ป่วยบาดเจ็บที่ศีรษะระดับไม่รุนแรง

ตอนที่ 1 แบบประเมินความสามารถในการปฏิบัติกิจวัตรประจำวัน

คำชี้แจง ให้ผู้ประเมินทำเครื่องหมาย ✓ลงในช่องตามที่ท่านได้ประเมินจากผู้ป่วยตามความเป็นจริง

เกณฑ์การประเมิน

คะแนน 1 หมายถึง ทำกิจกรรมด้วยตนเองไม่ได้เลย ต้องการคำแนะนำชี้แนะและต้องการการช่วยเหลือจากผู้อื่นทั้งหมด (Fully assistance)

คะแนน 2 หมายถึง ทำกิจกรรมได้เองบ้างเป็นบางส่วน โดยต้องการคำแนะนำชี้แนะ ให้กำลังใจ และให้การช่วยเหลือบ่อย (Frequent assistance

คะแนน 3 หมายถึง ทำกิจกรรมได้เองโดยลำพังต้องการคำแนะนำหรือการช่วยเหลือบ้างเล็กน้อยในบางครั้ง(Occasional supervision)

คะแนน 4 หมายถึง ทำกิจกรรมได้เองโดยอิสระ โดยไม่ต้องให้คำแนะนำหรือให้การช่วยเหลือ (Independent/intact)

กิจกรรมที่ประเมิน	ประเมินครั้งที่ 1				ประเมินครั้งที่ 2				ประเมินครั้งที่ 3			
	1	2	3	4	1	2	3	4	1	2	3	4
ด้านที่ 1 การเคลื่อนไหวและการเปลี่ยนท่า ..... **ด้านที่ 2 การดูแลตนเอง** .... **ด้านที่ 3 การโต้ตอบ สื่อสาร**												
คะแนนรวม												

ตอนที่ 2 แบบประเมินภาวะแทรกซ้อนภายหลังการบาดเจ็บที่ศีรษะระดับไม่รุนแรง

คำชี้แจง ให้ผู้ประเมินทำเครื่องหมาย ✓ลงในช่องตามที่ท่านได้ประเมินจากผู้ป่วย ญาติ และพยาบาล ตามความเป็นจริง โดยถ้าประเมินพบว่า “มี ” ให้ 1 คะแนน “ไม่มี ” ให้ 0 คะแนน

การประเมิน	ประเมินครั้งที่ 1		ประเมินครั้งที่ 2		ประเมินครั้งที่ 3	
	มี	ไม่มี	มี	ไม่มี	มี	ไม่มี
1. Postconcussion syndrome 1.1 ปวดศีรษะ …… …… …… …… 2. อาการชัก 2.1 จ้องมอง ไม่ตอบคำถาม …… …… ……						
คะแนนรวม						

APPENDIX F

The mean scores and standard deviation of each item of capability for daily activities and complications

Table 6 : The mean scores and standard deviation of each item of capability for daily activities between the control group and the experimental group

Item	Control group						Experimental group					
	pre- test		post- test 1		post- test 2		pre- test		post- test 1		post- test 2	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
1	3.40	.68	3.95	.22	4.00	.00	3.45	.89	4.00	.00	4.00	.00
2	3.40	.82	3.95	.22	4.00	.00	3.25	1.02	4.00	.00	4.00	.00
3	3.40	.75	3.95	.22	4.00	.00	2.70	1.26	4.00	.00	4.00	.00
4	2.70	1.26	3.35	.93	3.95	.22	2.05	1.36	4.00	.00	4.00	.00
5	3.35	.81	3.85	.37	4.00	.00	3.15	.88	3.95	.22	4.00	.00
6	3.55	.60	3.95	.22	4.00	.00	3.10	.97	4.00	.00	4.00	.00
7	3.45	1.00	3.95	.22	4.00	.00	3.15	1.04	4.00	.00	4.00	.00
8	3.40	.99	3.95	.22	4.00	.00	3.20	.95	4.00	.00	4.00	.00
9	4.00	.00	4.00	.00	3.85	.67	3.80	.52	4.00	.00	4.00	.00
10	3.95	.22	3.95	.22	3.90	.31	3.85	.49	4.00	.00	4.00	.00
11	3.95	.22	3.80	.62	3.90	.45	3.90	.31	4.00	.00	4.00	.00
12	3.95	.22	4.00	.00	4.00	.00	3.95	.22	4.00	.00	4.00	.00

Table 7 : The mean scores and standard deviation of each item of complications between the control group and the experimental group

Item	Control group						Experimental group					
	pre- test		post- test 1		post- test 2		pre- test		post- test 1		post- test 2	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
1	.75	.44	.35	.49	.60	.50	.80	.41	.60	.50	.50	.51
2	.85	.37	.75	.44	.70	.47	.80	.41	.65	.49	.45	.51
3	.55	.51	.25	.44	.20	.41	.30	.47	.00	.00	.00	.00
4	5.00 E-02	.22	5.00 E-02	.22	.10	.31	5.00 E-02	.22	5.00 E-02	.22	.10	.31
5	.30	.47	.00	.00	.40	.50	5.00 E-02	.22	.20	.41	5.00 E-02	.20
6	.80	.41	.40	.50	.20	.41	.20	.41	.25	.44	.20	.41
7	.15	.37	.10	.31	.20	.41	5.00 E-02	.22	5.00 E-02	.22	.15	.37
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

BIOGRAPHY

NAME Miss Sopin Srisompotch

DATE OF BIRTH 19 September 1962

PLACE OF BIRTH Samut Songkram, Thailand

INSTITUTIONS ATTENDED Khonkaen University, 1981-1985:
Bachelor of Nursing
Mahidol University, 2005 :
Master of Nursing Sciene
(Adult Nursing)

POSITION&OFFICE 1987-2000 Division of Surgical Nursing,
Nursing Department
Somdej Phrabuddhalertlar Hospital
Position : Registered Nurse

2003- Present Out Patients Department
Somdej Phrabuddhalertlar Hospital
Position : Registered Nurse

Tel. 01-4230343
E-mail: maepumin@yahoo.com

HOME ADDRESS 13 Moo 1 Tambol Yeesarn
Ampher Amphawa
Samut Songkram Province, 75110
Tel. 034-763025