CHAPTER 1: INTRODUCTION

1.1 Primary Intracerebral Haemorrhage (PICH) and problem statement

Spontaneous or primary intracerebral haemorrhage (PICH) is the second most common type of stroke, and is estimated to comprise about 78% to 88% of all intracranial haemorrhages (Rathor, Rani, Jamalludin & Amran, 2012). The World Health Organization (WHO), defines stroke as “rapidly developing clinical signs of focal (or global) disturbance of cerebral function with signs lasting 24 hours or longer or leading to death with no apparent cause other than of vascular origin” (Sacco, Kasner, Broderick and Caplan et al., 2013). According to the American Stroke Association (2013), a stroke due to intracerebral haemorrhage is defined as the rapid development of clinical signs of neurologic dysfunction as a result of the focal collection of blood within the brain parenchyma or ventricular system which is not caused by trauma (Sacco, Kasner, Broderick and Caplan et al., 2013). Hill, Silver, Austin & Tu, (2000) defined PICH as spontaneous intracerebral haemorrhage in the absence of secondary causes such as vascular malformation, vasculitis, moyamoya disease, aneurysm, cortical vein/sinus thrombosis, neoplasm, trauma, post-operative events, hyperviscosity syndrome, haemorrhagic diatheses, ischemic stroke, etc.

Worldwide reports show that the number of individuals who experienced a stroke increased by up to 68%, and the number of those who survived the incidence of a stroke has increased by 84% (Jaracz, Fudula, Gorna & Kozubski, 2014; Mansouri, Heidari, Asadollahi, Nazari et al., 2013). Delbari, Roghani, Tabatabaei, Rahgozar & Lokk, (2011) conducted a study to evaluate the profiles of stroke patients with respect to stroke rate, risk factor and one-month fatality. The annual stroke rate was estimated at 338/100000
(95% CI, 300-360) for inhabitants older than 45 years. The results of the subtypes were: 75% were due to ischemic infarction, 20.7% were due to intracerebral haemorrhage, and another 3% was due to an undetermined type of stroke. The mortality rate was 24.6% within the first month (Delbari et al., 2011).

The prevalence of intracerebral haemorrhage among Asians was higher than among Caucasians in the United States and Europe (Rathor, 2012). On the other hand, studies in Western countries have found that the prevalence of ICH is more common among blacks than whites (Qureshi et al., 2009). A study conducted in the West Coast of Peninsular Malaysia revealed that ICH was almost equally prevalent among the Malays (43.9%) and Chinese (39.4%)(Sia, Tan & Waran, 2007).

The pathophysiology of PICH is caused by the spontaneous rupture of small vessels damaged by chronic hypertension or amyloid angiopathy (Sacco, Kasner, Broderick and Caplan et al., 2013; Qureshi et al., 2009). PICH can be described as bleeding in the cerebrum. It occurs when the blood pressure is constantly high for a significant period of time, where the walls of blood vessels become weak causing the vessels to rupture and to leak blood into the brain. After the onset of intracerebral haemorrhage, the hematomas expand over time, and this may be associated with acute hypertension, a local coagulation deficit, or both (Gillespie, Bowen, Chung, & Cockburn et al., 2015; Lo Presti et al., 2014). The region surrounding the haematomas is characterized by oedema, apoptosis, necrosis, and inflammatory cells (Lo Presti et al., 2014; Qureshi et al., 2009). Haematomas increase injury by causing mechanical damage to the neurons and glia, followed by mechanical deformation resulting in oligaemia, neuro transmitter release, mitochondrial dysfunction, and membrane depolarization. A secondary episode of injury is started by the products of coagulation and haemoglobin breakdown, in particular, thrombin, which activate the
microglia. The microglia is purposely activated to promote the breakdown of the blood–brain barrier, vasogenic oedema, and apoptosis in the neurons and glia (Liebeskind, Kalkurni, Kirshner & Nassisi, 2011; Qureshi et al., 2009). The other mechanisms of PICH include the excessive use of anticoagulants, thrombolytic and antiplatelet agents, bleeding diatheses, iatrogenic anticoagulation, cerebral amyloidosis, and cocaine abuse (Rathor, 2012; Qureshi et al., 2009).

PICH has specifically been anatomically classified as lobar and non-lobar haemorrhages. A non-lobar haemorrhage is a haemorrhage that occurs in the epicentre of the brain in the putamen or caudate, thalamus, cerebellum, or brain stem; while a lobar haemorrhage is one that is located more peripherally, and usually expends to the brain surface. Lobar haemorrhages are divided according to the lobe (frontal, temporal, parietal, and occipital) or are known as bilobar if two contiguous lobes are involved or trilobar if three or more lobes are involved (Hill, Silver, Austin & Tu, 2000). According to Liebeskind et al. (2011), ICH usually affects the cerebral lobes, basal ganglia, thalami, cerebellum, and brain stem (predominantly pons). A haemorrhage that starts in the putamen, global pallidum, thalamus, internal capsule, deep periventricular white matter, pons, and cerebellum, specifically in a patient with known hypertension, is usually related to hypertensive small-vessel disease (Aries & Hunter, 2015; Morgenstern et al., 2010).

Patients with PICH present with a sudden onset of a focal neurological deficit, which progresses over minutes to hours, accompanied by headache, nausea, vomiting, decreased consciousness, and elevated blood pressure (Balami, & Buchan, 2012; Liebeskind, Kalkurni, Kirshner & Nassisi, 2011; Qureshi et al., 2009). The early progression of neurological deficits in many patients with ICH is frequently due to on-going bleeding and enlargement of the hematoma during the first few hours (Liebeskind et al., 2011).
Loss of consciousness occurs as a result of the initial area of brain damage and extended areas of damage due to secondary changes, such as increased intracranial pressure (Alverzo, 2005). The blockage of circulation in the brain or haemorrhage from the vessel-supplying area of the brain results in ischemia and tissue death in that area of the brain and the corresponding neurological deficits (Qureshi et al., 2009; Vanhook, 2009).

The nature of the disabilities resulting from PICH is categorized into physical and cognitive domains (Dalvandi, Heikkila, Maddah, Khankeh & Ekman, 2010; Leung, Cheng, Mak, Leung & Lee, 2010; Oh & Seo, 2010a). In terms of physical disability, the alteration in mobility, movement and sensory functions have been found to decrease the ability to perform functional activities and are significantly associated with the development of other medical complications (Oh, 2010; Leung, 2010; Dalvandi, 2010; Miller, 2010; Pandian & Arya, 2013). Stroke patients demonstrate a high dependence on others to perform functional activities of daily living such as self-care activities, sphincter control, transfers, and locomotion during the recovery stage (Aries & Hunter, 2015; Skolarus, Burke, Brown & Freedman, 2014; Leung, 2010; Oh & Seo, 2010; Almborg, Ulander, Thulin & Berg, 2010; Miller, 2010; Dalvandi, 2010; Green & King, 2010). Physical disability is usually associated with post-stroke complications such as respiratory infections, urinary tract infections, pressure ulcers, pain, deep-vein thrombosis and depression during the acute recovery phase and long-term rehabilitation phase (Kumar, Salem & Chaplan, 2010; Almborg, 2010; Miller et al., 2010).

In terms of cognitive functions, about 25.0% of ICH patients are disabled in terms of problem solving, safety and social behaviour at six months after admission (Oh & Seo, 2010; Leung, 2010; Dalvandi, 2010). The rate of having cognitive deficits after ICH varies from 11.6% to 56.3% in the majority of hospital-based studies (Patel, Coshall,
ICH patients with cognitive deficits after a haemorrhagic stroke have also been reported to be associated with emotional difficulties and depression. Post-stroke depression (PSD) has been estimated to occur in 18% to 50% of individuals who experienced strokes (Kuptniratsaikul et al., 2009). According to Taylor, Todman & Broomfield (2011), predicting and understanding the adaptation of patients to a stroke, therefore, poses challenges within the recovery period. PICH patients show symptoms of depression and have significantly lower functional scores both at the onset of a stroke and after six months, and are consistently associated with negative consequences, including poor recovery of survivors (Taylor et al., 2011; 2010; Leung, 2010; Dalvandi, 2010).

The common risk factors for PICH are hypertension, particularly in those who are not complying with antihypertensive medication (Rutten-Jacobs, Maaijwee, Alebeek & Schaapsmeerders et al., 2011; Liebeskind, Kalkurni, Kirshner & Nassisi, 2011). Many studies stated that PICH was significantly higher among young adults and middle-aged persons (Wei et al., 2011; Umeano, Philips-Bute, Hailey & Sun et al., 2013). Studies have found that ICH occurs slightly more frequently among men than women (Zhou, Zhang & Arima et al., 2014; Al-Khaled et al., 2014; Weimer, Sacco, Diener & Konig, 2009; Yesilot, Koyuncu, Coban, Tuncay & Bahar, 2011). Even though the risk of ICH is higher in males than in females, the risk of dying from PICH is higher among females with ICH (Zhao et al., 2014).

1.2 Research Problems and Significance of the study

PICH is a stressful experience for patients. Many studies have reported that PICH is associated with a high rate of mortality, disability and poor functional outcomes, and it is estimated to affect over 1 million people worldwide each year (Rathor, 2012; Delcourt & Anderson, 2011; Bahao, 2009; Baseman et al., 2010; Oh et al., 2010). Baseman et al,
(2010) stated that mortality rates for PICH have been documented to be about 23.3% to 34.0 %, and 66% to 76.7% of survivors have been reported to be disabled. According to Jammali, McInnes, Markus & Fauk et al., (2011), patients with intracerebral haemorrhage and having a stroke had a significantly lower functional score in terms of physical and cognitive functions. Although PICH is associated with a high mortality rate, and most survivors are usually left with significant functional disabilities, however, the mortality rate pattern is decreasing due to improvements in early investigation and treatment (Ukraintseva, Sloan, Arbeev & Yashin, 2006). It is important to determine the degree of severity of PICH, degree of disability resulting from PICH and what are treatments provided in relation to the control of hypertension.

Rehabilitative care and treatment should begin as early as possible in the acute phase and be extended into community reintegration (Rettke & Geschwindner, 2013). Early rehabilitation for haemorrhagic stroke (PICH) is part of routine care in acute hospital settings, especially in neurosurgical units. An acute inpatient recovery phase begins immediately after patients with intracerebral haemorrhage, survived the critical condition and impairments. During the inpatient recovery phase, the patients are usually placed in a neurosurgical ward for rehabilitative care and treatment. They are usually referred for physiotherapy, occupational therapy and speech-language pathology treatment. Comprehensive and professional healthcare support by nurses will help to promote faster recovery, reduce the degree of disability, minimize post-stroke complications, promote independence, and enhance optimal adaptations to stroke disabilities. It is important to determine the prevalence of PICH patients having post-stroke complications and depression at acute inpatient recovery phase and at later post PICH and what are the care managements provided in relation to prevent post stroke complications. It is also important to determine the level of multidisciplinary team involvement such as
physiotherapy, speech therapy, nutrition, pharmacy and as well as family of the patients in care management.

Adaptation to a stroke-related disability is crucial in determining the level of a patient’s ability to adjust to the sudden stroke disability and to live with the disability for a prolonged period of time following PICH. Adaptation is conceived as a process of responding to the functional, psychological and social changes that occur with the onset and experience of living with a disability (Taylor, Todman & Broomfield et al, 2011). The adaptation should be determined several times during the recovery process, starting from the patient’s survival of the critical phase, usually in a hospital setting, immediately after discharge, and subsequently, during the long-term period of recovery, whether it is three months, six months or years, and usually during the time when the patients are at home or in a community setting (Morgenstern et al., 2014; Jammali, McInnes, Markus & Fauk et al., 2011).

Adaptation occurs when the patient participates in adjusting to the disabilities and is able to accept the disabilities (Taylor, Todman & Broomfield et al., 2011). Adaptation to disabilities as a consequence of intracerebral haemorrhage (PICH) is perceived as a patient recovers from the impact of physiological, functional, psychological, and social changes following a stroke.

Recovery after a stroke is viewed by improvements in clinical indicators that include physical, cognitive and emotional functioning and the ability to carry out the activities of daily living (Davis, Egan Dubouloz, Kubina & Kessler, 2013; Davis, 2013). Based on this perspective, adaptation involves mourning the lost abilities and the acceptance of one’s disability (Davis, 2013; Taylor, Todman, Broomfield et al, 2011). This focus on
functioning and the acceptance of the disability is somewhat inconsistent with the perspective of those recovering from a stroke. In other words, adaptation and recovery with regard to a stroke-related disability after PICH are concerned with both the prevention of further disabilities and the reduction of the consequences of the functional disability. PICH patients and their caregivers should have access to stroke information and they need to be encouraged to participate in rehabilitation interventions. It is also crucial to ensure that the educational and informational needs of the stroke patients and their caregivers are met.

Early adaptation refers to patients who gain better recovery from stroke neurological deficits without post-stroke complications, show improvement in their abilities to perform functional activities, can be discharged from a hospital setting, and have adequate support from their family. It is important to determine the factors enhancing or inhibiting early adaptation in acute recovery phase. The critical variables that predicted as the factors that might affect the recovery process are patients’ background such as age, gender and social-economic status, severity of ICH, severity of neurological deficit, location of brain lesion, ICH treatments, post stroke complications and length of stay (Wei et al., 2011; Umeano, Philips-Bute, Hailey & Sun et al., 2013; Zhou, Zhang, Arima & Zhao et al., 2014; Al-Asadi & Habib; LoPrestietal., 2014; Bahou, 2009; Yesilot, et al., 2011; Ordin, 2013; Indredavik, Rohweder, Naalsund & Lydersen, et al., 2008; Kuptniratsaikul et al., 2009; Vargas, et al., 2006). It is important to nursing management to focus on early response to stroke-related disability by giving attention and care related to the sudden neurological deficit, encouraging patients and their caregivers to participate in early rehabilitation interventions, and encouraging and motivating patients to gain early adaptation with their stroke disability. Hu, Hsu, Yip, Jeng & Wang, (2010) also stated that rehabilitation for patient in acute setting includes positioning, range of motion's exercises, mobilization,
sitting balance training, facilitation of limb and trunk control, and education of patients and family.

Later adaptation is the long-term physical and cognitive recovery in achieving maximum functional ability at home after being discharged from hospital setting (Livneh 2001). Most survivors are usually left with significant functional disabilities, with only 31% of patients with ICH being functionally independent at 3 months, and only 38% of the patients surviving the first year (Oh and Seo, 2010; Bahao, 2009). A recent finding demonstrated that ICH patients have better outcomes compared to other types of strokes (Leung, 2010). The long-term effects of PICH are becoming more important to the public at large as well as for nursing and healthcare professionals. Thus, it is important to determine the long-term positive or negative adaptation outcomes because during this period of time, the majority of PICH survivors are still in the process of physical or cognitive rehabilitation to overcome their disabilities. Positive adaptation is the patients’ recovery from critical phase following PICH and show improvement in ability to perform activities during early and at later in recovery phase. Study by Oh & Seo (2010) and Yesilot, et al. (2011), reported that better functional recovery occurred between three to six months after ICH. Almborg, et al., (2010) reported that the factors positively associated to later adaptation (3 month) outcome of post stroke patients include high independence in functional activities of daily living, presence or absence of psychological problem or depression, have social support and healthcare resources and absence of post stroke complications. The factors negatively affecting later adaptation (3 month) to achieve the maximum score of functional abilities include patients who developed stroke-associated infection (Shinohara, Yanagihara, Abe & Yoshimine, 2011), depression (Gaete & Bogousslavsky, 2008) and low stroke knowledge (Cameron, 2013; de Palva et al., 2012). So the focus of this study is to examine whether there is significant
improvement of patient's adaptation in gaining maximum recovery in functional disability, factors that affect early adaptation in response to stroke-related disability during acute inpatient recovery phase and later adaptation (3 month) outcome after experiencing PICH.

In Malaysia, there is an underestimation of the importance of immediate action for the patient with signs and symptoms of intra cerebral haemorrhage or haemorrhagic particularly stroke, at government hospitals. Although early rehabilitation for haemorrhagic stroke (PICH) is part of routine care in acute hospital setting especially in neurosurgical units in Malaysia, however, there are limited studies, including specific rehabilitation nursing care to predict adaptations and factors contributing to adaptations with stroke disabilities, specifically for patients with PICH, and particularly in the long term adaptation.

In summary, patients with primary intracerebral haemorrhage commonly experienced changes or disabilities in terms of their neurological status and functional activities, and are at risk of developing post-stroke complications and depression. Adaptations after experiencing a stroke are perceived as the patients’ response to sudden and long-term stroke-related disabilities. However, there are factors predicting early and later adaptation of post primary intracerebral haemorrhage patients.

1.3 Research Questions

This study aimed to determine the functional adaptation outcomes at early and later (3 month) of post-PICH. The research questions of this study are delineated according to the two phase in order to answer the identified research problems.
Thus the research questions are as follows:

1.3.1 What are the profiles of early and later adaptation of post PICH patients?

1.3.2 Are there any improvements of functional adaptation between early phase and later (3 months) of PICH patients who admitted at the Hospital Universiti Sains Malaysia (HUSM) and the Hospital Sultanah Nur Zahirah, Kuala Terengganu.

1.3.3 What are the predictors affecting early and later (3 month) adaptation in achieving maximum functional recovery outcomes.

By understanding the increase or decrease in functional adaptation between early and later phase (3 month) and the predictors affecting of functional adaptation during both phases, it will be possible to plan for a new guideline for specific care for PICH patients during acute inpatient recovery setting, and to develop specific educational guidelines to promote good recovery outcomes for PICH patients.

1.4 Study Objectives

The main objective of this study was to assess early and later (3 months) of functional adaptation in achieving positive recovery outcomes, improvements and predictors affecting early and later of functional adaptation of PICH patients.

The specific objectives of the study are delineated according to the two phases;

Phase 1: During inpatient recovery phase post PICH;

1.4.1 To describe the profiles of early functional adaptation score at baseline of post PICH patients?
1.4.2 To determine the correlations between early functional adaptations score of post-PICH patients with selected numerical variables [age, severity of neurological deficit, Glasgow Coma Score, depression acute, stroke knowledge, length of hospital stay and ICH treatment].

1.4.3 To determine the significant associations between socio-demography and clinical characteristics [availability of primary caregiver to give support, length of hospitalization, ICH treatments, severity of neurological deficits, depression, post-stroke complications and stroke knowledge of patients and their caregivers during the acute inpatient recovery phase] as predictors affecting early functional adaptation of PICH patients in achieving positive recovery from stroke disabilities.

**Phase 2: Later (3 month) at home post PICH**

1.4.4 To describe the profiles of later (3 month) functional adaptation of post-PICH patients

1.4.5 To determine the correlations between later (3 month) functional adaptation score of post PICH patients with selected numerical variables [age, severity of neurological deficit, Glasgow Coma Score, depression acute and at three month, stroke knowledge, length of hospital stay and ICH treatment].

1.4.6 To determine the changes in the score between early and later (3 month) functional adaptations, post-stroke complications and depression and,

1.4.7 To determine the significant associations between socio-demography and clinical characteristics [availability of primary caregiver to give support, severity of neurological deficits, length of hospitalization, ICH treatments, status of post-stroke complications during the acute inpatient recovery phase, status of later complications at three months, stroke knowledge of patients and their family...
caregivers, early adaptation score, status of depression during acute inpatient recovery phase and later at three months] as predictors of functional adaptation of PICH patients at later (3 months) follow up.

1.5 Operational Definitions

1.5.1 Primary Intracerebral Haemorrhage (PICH)

Primary intracerebral haemorrhage (PICH) is defined as a spontaneous ICH that occurs after the sudden rupture of vessels related to hypertension-related degenerative changes or cerebral amyloid angiopathy or other mechanisms, including excessive use of anticoagulants, thrombolytics, and antiplatelet agents in the absence of secondary causes such as arteriovenous malformations and aneurysms, tumours, or impaired coagulation (Hill, Silver, Austin & Tu, 2000).

1.5.2 Early Functional Adaptations

This study defines early functional adaptation as the measurement of a patient’s functional recovery in performance of functional activities during acute inpatient recovery phase post PICH. In this study, the early adaptations of the patients were assessed using a validated Malay version Functional Independence Measure (FIM) questionnaire (Musicco, Emberti, Nappi & Caltagirone, 2003) taken on day 2 to 14 post PICH.
1.5.3 Acute inpatient recovery phase

An acute inpatient recovery phase begins immediately after patients with intracerebral haemorrhage survived from critical condition and impairment. This phase last for weeks to months with the aim to reduce the degree of disability and provide a comprehensive and professional health care support in relation to establish community life. During inpatient recovery phase, the patients are usually referred for physiotherapy, occupational therapy and speech-language pathology treatment, further, during this phase the patients receive a comprehensive nursing care and stroke education in it’s the goal of improving functional limitation or disability and the prevention of post stroke complications and depression.

1.5.4 Recovery from stroke-related disabilities

A positive adaptation is deemed as the patient’s recovery from a critical phase following PICH and showing improvement and being independent to perform activities by improving physical, cognitive and mental functions during the early and later in recovery phases.

1.5.5 Later (3 months) Functional Adaptations

A later (3 months) functional adaptation is the outcomes of continuous physical and cognitive recovery at home. During this phase, recovery from critical physiological problems may improve, but recovery from the physical and cognitive disabilities can vary considerably. Improvements in physical and cognitive disabilities can continue depending on the emotional and cognitive resources, and later adaptation frequently requires support, care and training at the community level. In this study, the long-term adaptations
of the patients were assessed at 3 months using a validated Malay Functional Independence Measure (FIM) score questionnaire (Musicco, Emberti, Nappi & Caltagirone, 2003).

1.5.6 Post-stroke complications

The change in physical and cognitive abilities can potentially lead to the development of a variety of post-stroke complications. The post-stroke complications included in this study were chest infections, urinary tract infections, pressure sores and deep-vein thrombosis. This study used a Complication Inventory Checklist (CIC) to determine the status of complications at two weeks (CIC-ACUTE) and at three months (CIC-3 MONTHS) post-PICH.

1.5.7 Stroke Knowledge

Stroke knowledge is consists of information about stroke disease and management at home after suffering a stroke-related disability. The stroke patients and their family caregivers should be provided with information about stroke and its management at home prior to being discharged from the hospital. Those with knowledge on stroke may have enhanced recovery, improved adaptation to stroke-related disabilities and may avoid post-stroke complications and depression. This study used a Stroke Knowledge Questionnaire (SKQ) to evaluate the scores of patients and their family caregivers regarding stroke knowledge that included stroke illness, risk factors, treatment, dealing with signs of problems or recurrent strokes, management of depression and post stroke complications.
1.5.8 Post stroke depression

Depression is a term that has both a lay meaning as well as a meaning for psychiatric diagnosis which the person showed periods of sadness or “feeling blue,” as well as feelings of loss and bereavement are a normal part of the human condition (Johnson, Minarik, Nyström, Bautista & Gorman, 2006). Post stroke depression considers as minor depression and sub-syndrome depression (Johnson et al. 2006). Minor depression is a term that is used in clinical practice in general hospital settings and in research. Minor depressive disorder is included in the current edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) as a research diagnosis, meaning that there was insufficient evidence or professional agreement to include it as an official diagnosis at the time of publication (Johnson et al., 2006). Minor depressive disorder refers to one or more periods of depressive symptoms lasting at least 2 weeks but involving fewer symptoms and less impairment than major depressive disorder (MDD). Major depressive disorder (MDD) is distinguished by one or more major depressive episodes lasting at least two weeks and characterized by a depressed mood or diminished interest or pleasure for most of the day almost every day. It is accompanied by at least four out of nine depressive symptoms: depressed mood; diminished interest or pleasure; changes in appetite or weight; insomnia or hypersomnia; psychomotor agitation or retardation; fatigue or loss of energy; feelings of worthlessness or excessive or inappropriate guilt; diminished ability to think or concentrate, or indecisiveness; and recurrent thoughts of death, recurrent suicidal ideation, suicide attempts, or specific plans for suicide. The episodes include clinically significant distress or impairment in social, occupational or other important areas of functioning.
1.6 Thesis Organization

The background, research problems and significance of the study, research questions, objectives, regarding this study have been described in this chapter. The following components of the thesis are organised according to the focus on the chapters.

The related literature in the area of the impacts and adaptations in response to PICH-related disabilities and the contextual factors associated with early and long-term adaptations are presented in Chapter Two. The theories and concepts surrounding ICH or intracerebral stroke are also elaborated. The conceptual framework is described at the end of Chapter Two.

The research method, including the study design, sampling and data collection as well as the data analyses, is presented in Chapter Three.

Chapter Four describes the PICH patients who participated in this study, and reports the findings from the study. The results obtained from Phase I and Phase II are reported, with an emphasis on describing the findings on early and long-term adaptations and the relationship between early and long-term adaptation outcomes with selected variables.

The findings from this study were discussed in Chapter Five based on the research questions, with the main focus being on factors affecting early and long-term adaptation outcomes in response to stroke-related disabilities.

Chapter Six presents the implications, recommendations and conclusion from this study.
1.7 Summary

In summary, patients with primary intracerebral haemorrhage commonly experience changes or disabilities in terms of their neurological status and functional activities, and are at risk of developing post-stroke complications and depression. Adaptations following a stroke are perceived as the patients’ response to sudden and long-term stroke-related disabilities. By understanding the factors that are related to the adaptation process, nurses will be better prepared to participate in meeting the needs of PICH patients, and to help in redesigning the inpatient rehabilitation nursing interventions specific to the promotion of recovery and the enhancement of adaptations to stroke haemorrhagic.