

## CHAPTER 2

### REVIEW OF THE LITERATURE

In this chapter, the literature review includes an overview of stroke including types of stroke, impact of stroke, and stroke recovery. Investigation related to quality of life (QOL) of stroke survivors are discussed in terms of the concept of QOL, QOL of stroke survivors, factors affecting stroke related QOL and the measurement of stroke related QOL. Other literature reviewed in this chapter include the nursing intervention for enhancing QOL of stroke survivors.

#### *Overview of Stroke*

#### *Types of Stroke*

Stroke is a syndrome characterized by a sudden or gradual onset of neurological deficit (Harrell, 1997). WHO (1978) defined stroke clinically, rather than pathologically as ‘rapidly developing clinical signs of focal (or global) disturbance of cerebral function, with symptoms lasting 24 hours or longer or leading to death, with no apparent cause other than of vascular origin’. This includes subarachnoid hemorrhage but excludes transient ischemic attack (TIA), subdural hematoma, and hemorrhage or infarction caused by infection or tumor (Wolfe, 2000).

Types of stroke according to causes can be grossly categorized as occlusion or ischemic and hemorrhage (Ebrahim, 1998; Roth & Harvey, 1996).

*Occlusion or ischemic stroke.* In ischemic stroke, the occlusion may affect large vessels (thrombosis or embolism), or small vessels (lacunar stroke). The most common cause of thrombotic stroke is atherosclerosis in the arteries of the brain; most embolic strokes come from cardiac emboli. The primary causes of emboli from the heart are atrial fibrillation; damaged, infected, or prosthetic valves; or damaged or dyskinetic myocardial segments (Kalra & Crome, 1993). Occlusion of the cerebral circulation reduces the delivery of oxygen and glucose to neurons causing failure of calcium homeostasis and cell death. Thrombotic stroke, which is associated with atherosclerosis, is the most common type of stroke in the elderly (Harrell, 1997). The prevalence of ischemic stroke accounted for 60.7% of all strokes in Northern Thailand, 72.6% in Northeast Thailand, and 93.5% in Southern Thailand (Sangsuwan, Sa-nguanmitra, & Navacharoen, 1996; (Asawavichienjinda & Boongrid, 1998; Sathirapanya et al., 2002). This figure is consistent with the study of Bamford, Sandercock, Dennis, and Warlow (1990) which found that occlusive stroke occurs in 85% of stroke patients.

*Hemorrhagic stroke or cerebral hemorrhage.* This type of stroke is caused by bleeding from small microaneurysms associated with changes in the arterial walls due to long-term hypertension. Amyloid angiopathy resulting from weakness in arterial walls infiltrated with amyloid is the most common cause of hemorrhagic stroke in the elderly (Ebrahim, 1998). According to Roth and Harvey (1996), intracranial hemorrhage includes 15% of all strokes and can be divided into intracerebral (10%) and subarachnoid (5%) hemorrhage. Subarachnoid hemorrhage in later life typically results from aneurysmal rupture of a cerebral artery with blood loss into the space surrounding the brain.

In hemorrhagic stroke, an acute mortality is high because the damage can result in increasing intracranial pressure, disruption of multiple neural tracts, ventricular compression, and cerebral herniation. Those who survive intracranial hemorrhage often experience rapid neurological recovery during the first two or three months after the hemorrhage (Roth & Harvey, 1996).

The consequences of stroke are classified by the World Health Organization International Classification of Impairments, Disabilities, and Handicaps (ICIDH) as impairments, disabilities, and handicaps. Impairments are signs and symptoms of the underlying pathology of stroke, disabilities include limitations in functional activities, and handicaps refer to a disadvantage for a given individual that limits or prevents him or her from fulfilling a role that is normal for that individual (Duncan et al., 1997; Duncan, Wallace, Studenski, Lai, & Johnson, 2001). Stroke often leads to physical impairment (Chemerinski, Robinson, & Kosier, 2001). In stroke patients, common impairments include motor deficits, abnormal sensations, aphasia, visual-spatial neglect, cognitive deficits, depression, and changes in affect. Common disabilities include problems with activities of daily living (ADL) such as mobility, eating, toileting, or ability to manage higher-level cognitive activities such as managing finances or medications, shopping or driving. Examples of handicaps from stroke include being bedridden or confined to home; being unable to use public transport; being socially isolated (United Nation, 2002).

#### *Impacts of Stroke*

The impacts of stroke include physical impact, psychosocial impact, and economic impact. These impacts of the stroke on individuals depend on severity and

mechanism of stroke, psychosocial consequences, age and family role, personal and family patterns of coping, and financial resources (Farzan, 1991).

*Physical impact.* After a stroke, many survivors continue to live with their residual impairments and disabilities, which can pose a significant problem for the survivor's well-being (Clarke et al., 2002). The specific symptoms depend on the location and amount of the brain involved, as well as the site of the occlusion. Physiological problems associated with the stroke include motor deficits (such as hemiplegia, dysarthria, dysphagia), sensory deficits (perceptual deficits), language deficits (aphasia), visual deficits (defects in the visual fields, diplopia, decreased acuity), decreased level of conscious, intellectual or emotional deficits, and bowel and bladder dysfunction (Leahy, 1991).

Some physiological changes increase the likelihood that stroke survivors will have difficulty understanding information, express needs and feelings, and convey emotion. Difficulties in cognitive function are problematic for the one who has had a stroke. Even mild or moderate difficulties with cognitive function limit survivors' ability to plan and develop goals in life, constraining their sense of purpose and meaning (Clarke et al., 2002).

Physical impact of stroke leaves a patient with impairments of health status and/or functional ability. A study of health status among 304 persons with mild stroke, 184 persons with transient ischemic attack (TIA) and 654 persons without history of stroke or TIA showed that the stroke group was more impaired on health status than the asymptomatic group but similar to the group with TIAs (Duncan et al., 1997). Moreover, Clarke et al. (2002) found that seniors living with stroke in the community experience more restrictions in ADL than seniors living without the

effects of stroke. They are more than twice as likely to experience difficulty with bathing and meal preparation; and also three times more likely to require assistance with walking and getting around outside the home than seniors who have not had a stroke.

*Psychosocial impact.* Psychological impacts in stroke survivors depend on the uniqueness of each individual who has had different life experiences, perceptions of stroke, coping mechanisms, and available financial resources. Post-stroke depression is one of the common consequences of stroke. Stroke survivors are at great risk for depression. Depression can result either from the direct biological effect on brain infarction, such as that associated with left anterior cortex and basal ganglia lesions, or the reaction to the significant losses associated with the stroke (Kelly-Hayes et al., 1998). The symptoms are often the same as for the first type and therefore is difficult to diagnose. The difference is that a biological depression results from how the brain works after it has been injured, whereas a psychological response results from disability and loss.

The prevalence of depression after stroke has been estimated to range from 11% to 68% (Kelly-Hayes et al., 1998). In the U.S., an estimated 10-27 % of stroke survivors experience major depression. An additional 15-40 % experience some symptoms of depression within two months following stroke (Rockville, 1993).

Depression causes hopelessness and loss of initiative to cooperate with any provided care (Sathirapanya et al., 2002). Lai and colleagues (2002) found that stroke patients with depressive symptoms progressed slower in achieving independence in basic activities of daily living (ADL) and instrumental activities of daily living (IADL) compared to patients without depressive symptoms (Lai, Studenski, Duncan, & Perera, 2002).

Social impacts of stroke, especially decreased socialization, commonly occurs after stroke. A decline in social activity participation has been found in many studies. Gresham et al. (1975) studied 119 stroke survivors and found that 62% reported a decrease in social activity. A study that compared prior social activities and post stroke social activities between depressed and nondepressed stroke survivors found that 67% of depressed group showed a decrease in social activities, whereas there was only a 43% decrease in the nondepressed group (Feibel & Springer, 1982).

*Economic impact.* Another important impact of stroke is the economic impact. Stroke is expensive because so many people end up in the hospital for a long period of time. Stroke has both direct and indirect costs. The direct costs of a stroke include hospitalization, in-patient rehabilitation, and out-of-hospital care, such as home-rehabilitation. The indirect costs come from lost economic production (Ebrahim & Harwood, 1999).

A stroke does not impact only the survivors, but also the family. The changes in health status and functional ability require the survivors to make decisions about how to cope with those changes and face the need to change their living arrangements or secure additional financial or personal resources to meet their self-care needs (Folden, 1993). During the recovery stage, when the patient becomes medically stable, the family must begin to prepare for their changes in roles and responsibilities, balance the patients' needs with their own, establish goals for the family, and deal with financial issues (Farzan, 1991).

### *Stroke Recovery*

There are two types of recovery: intrinsic and adaptive. Intrinsic recovery is a degree of return of neural control, and adaptive recovery is the use of alternative strategies to overcome disability. The stroke patients and those who have had previous strokes are less likely to do well and are more likely to have higher mortality and poorer functional outcome (Kalra, 1998).

Recovery is fastest in the first few weeks after stroke, with a further 5 – 10 % occurring between six months and one year. About 30% of survivors are independent within 3 weeks, and by 6 months this proportion rise to 50% (Sacco, Wolf, & Gorelick, 1999; Wade & Langton-Hewer, 1987). The prevalence of stroke survivors with incomplete recovery in the U.S. has been estimated at 460/100,000 (Bonita et al., 1997). Some problems such as homonymous hemianopia, dysphagia, and sitting balance resolve very quickly in stroke survivors, whereas arm paralysis and language impairment recover more slowly and less completely. Perceptual problems may persist or take a very long time to recover (Kalra, 1998).

Stroke survivors may have good probability of recovery, but the time to achieve outcomes is influenced by many factors, especially stroke severity (Duncan & Lai, 1997). Completeness of recovery depends on the severity of the initial deficit.

Rate of recovery varies for different impairments and disability. Duncan and Lai (1997) state that motor recovery and functional recovery have a very strong relationship. In Kansas City Stroke Study, the most dramatic recovery of motor impairment occurs early; it occurs in the first 30 days, but in a few cases, recovery can occur up to six months or later. Similar to motor recovery, the most dramatic

functional recovery such as recovery of ADL takes place in 30 days. However, in severe strokes the most recovery occurred between one month and three months poststroke .

### *Quality of Life of Stroke Survivors*

#### *Quality of Life Concepts*

The term “Quality of Life” (QOL) became commonly used in western countries after World War Two (Farquhar, 1995). Initially, it was focused on material things such as money, houses, and cars and then expanded to non-material factors, such as personal freedom, enjoyment and emotional well being. Over time, the concept of QOL has been adapted for use in health care (Lau & McKenna, 2001). The increasing use of QOL in social research was followed by an increase in the use of the term in clinical trial interventions from the mid-1970; in particular in the fields of oncology, rheumatology and psychiatry (Farquhar, 1995).

It has been shown that QOL is defined in many different ways. For example, World Health Organization Quality of Life (WHOQOL) group defined QOL as “individual’s perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns” (WHOQOLgroup, 1998). Some nursing investigators defined QOL in terms of subjective perception of happiness or satisfaction with life in domains of importance to the individual (Ferrans & Powers, 1992; Oleson, 1990).



Patrick and Erickson (1993) defined health related quality of life (HRQOL) as “the value assigned to duration of life as modified by the impairments, functional status, perceptions and social opportunities influenced by disease, injury, treatment or policy”. Shumaker and Naughton (1995) identified HRQOL as “ people’s subjective evaluations of the influences of their current health status, health care, and health promoting activities on their ability to achieve and maintain a level of overall functioning that allows them to pursue valued life goals, and that is reflected in their general well-being”.

Although definitions of QOL vary from socioeconomic status, satisfaction of needs and functional capacity to meaning in life, life satisfaction, well-being and happiness (Anderson & Bruckhardt, 1999; DeHaan, Limberg, Vander, & Anderson, 1995; Farquhar, 1995; Ferrans & Powers, 1992; Oleson, 1990), the precise and conceptual definition of QOL has not yet been reached. However, many researchers accept QOL as multidimensional, with both subjective and objective elements, and with interrelated individual domains (Ferrans & Powers, 1992; Lau & McKenna, 2001; Rustoen, Moun, Wiklund, & Hanestad, 1999).

There are many studies about the components of QOL. DeHaan et al. (1995) stated that at least four dimensions should be included in QOL concepts: physical, functional, psychological, and social health. They defined the physical health dimension as disease-related symptoms and functional health as the self-care and physical activity level. Psychological health was defined as cognitive functioning, emotional status, and general perception of health, well-being, life satisfaction, and happiness, while social function comprises social contacts and interactions. However, Lau and McKanna (2001) found that components relevant to QOL of elderly people

with stroke in Hong Kong included physical well-being, functional well-being, psychological well-being, social well-being, economic well-being, and spiritual and philosophical well-being. In the nursing perspective, King (1998) suggested five dimensions of QOL as indispensable components of the construct: physical, psychological, social, somatic/disease-related and treatment-related symptoms, and spiritual dimensions.

As nurses keeping with the disciplines' holistic approach, the broadest view in defining QOL is used in this study. The definition of QOL in this study is the subjective perceptions of impact on individual health and life which include eight domains of physical, emotional and social aspects. These domains include strength, hand function, mobility, activities of daily living, emotion, memory, communication, and social participation. This definition is given by Duncan and colleague (1999), which viewed QOL in terms of stroke-related outcomes identified by the International Classification of Impairments, Disabilities, and Handicaps (ICIDH) Model, developed by WHO in 1980.

Generally, stroke survivors experience a decrease in their QOL after a stroke.

Cross-sectional data suggest that health related quality of life (HRQOL) and well-being after stroke are significantly impaired. A study of 5395 community-dwelling seniors, including 339 stroke survivors found that stroke survivors reported lower well-being, greater likelihood of restriction in both physical and cognitive functions, poorer mental health, and more co-morbid conditions than seniors who had not had a stroke (Clarke et al., 2002). Another study of 50 stroke survivors between one and three years after discharge found that overall QOL was low (Kim et al., 1999). The study of the 46 stroke survivors, aged between 17-64 years, indicated that 83% of the

patients showed deterioration in their QOL after stroke onset (Niemi et al., 1988). Similarly, Ahliso and associates (1984) found that 43% of 96 stroke patients experienced a decrease in their QOL during the two years. The QOL deteriorated progressively with increasing degree of disablement (Ahlisio et al., 1984). Moreover, Astrom et al. (1992) identified the pattern of decreasing QOL, reaching a low at three months after stroke onset, followed by rising at one year poststroke, and then remaining unchanged for the subsequent two years (Astrom et al., 1992).

#### *Factors Affecting Quality of Life of Stroke Survivors*

There are many positive and negative factors affecting QOL. Good health, high socioeconomic status, better education, sexual satisfaction, participation in leisure activities, social interaction, internal locus of control, and relief of symptoms have been positively linked with QOL. Houglan-Adkins (1993) reviewed factors that exert a negative effect on QOL and found that symptom distress, emotional distress, cognitive and memory deficit, fatigue, vertigo, social dependency, altered body image, and pain have negative effects on QOL.

In stroke survivors, several factors that appear to contribute to the change of QOL have been reported. Many studies have confirmed that factors positively associated with stroke survivors' QOL were independence with ADL and increased functional ability (Carod-Artal, Egido, Gonzalez, & de Seijas, 2000; Robinson-Smith, Johnson, & Allen, 2000), social support (Kim et al., 1999; King, 1996). Depression had negative effect on stroke survivors' QOL (Bay, 2001). In this study, the investigator grouped factors that related to stroke related QOL as: personal factors,

stroke-related factors including type and severity, functional ability, depression, and perceived social support from family.

*Personal factors.* Personal factors such as gender, marital status, income and co-morbid diseases have been studied for their influence on QOL of stroke survivors. Nakaya (1999) compared QOL between 250 stroke survivors and 250 reference subjects in Thailand and found that stroke survivors had lower QOL than the reference subjects; and the factors that predicted QOL were family income (not enough income) and marital status (without spouse). Kim and his colleagues (1999) found that being married and high income were positively related to overall QOL of stroke survivors, while age, gender, education, and living arrangements did not correlate with QOL. The findings of age related to stroke survivors' QOL were inconsistent. Some studies found that older age was associated with a decreased QOL (Hackett, Duncan, Anderson, Broad, & Bonita, 2000; Lai, Studenski et al., 2002), some with an increased QOL (Wyller, Holmen, Laake, & Laake, 1998), while others found no relationship (Carod-Artal et al., 2000; Kim et al., 1999). In addition, gender and socioeconomic status were not consistently associated with stroke survivors' QOL. Two studies found that QOL of women was lower than men (Carod-Artal et al., 2000; Hackett et al., 2000), whereas Wyller et al. (1998) found lower QOL in men. Ahlsio, Britton, Murray, and Theorell (1984) found that 76% of 96 stroke survivors were independent as regards ADL; age as well as initial function was prognostically important factors.

*Stroke-related factors.* Types and severity of stroke are two important factors that affect QOL of the survivors. From the study of Kim and his colleagues (1999), stroke type and localization were related to overall QOL of stroke survivors.

Severity of motor impairment, severity of aphasia, impaired cognitive function, and supratentorial lesion locations have been correlated with a decreased QOL (Carod-Artal et al., 2000; DeHaan et al., 1995; King, 1996; Niemi et al., 1988). Bay (2001) summarized previous research on QOL of stroke survivors during the recovery process and found that in the regression analyses across multiple cultures, the three variables including functional ability, especially the upper extremities; depression; and socialization explained from 22% to 73% of the variance in stroke survivors' QOL.

*Functional abilities.* Many studies have confirmed that factors positively associated with stroke survivors' QOL were independence with activities of daily living and increased functional ability. A study that assessed 63 stroke survivors during inpatient rehabilitation found that functional independence was modestly correlated with QOL at six months after stroke, but not at one month after stroke (Robinson-Smith et al., 2000). Decreased functional dependence has been correlated with a decreased QOL in the majority of studies reviewed (Carod-Artal et al., 2000; King, 1996). Ahlsio et al. (1984) used a visual analogue scale to measure change in QOL of 96 stroke survivors and found that there was a correlation between change in QOL and ADL capacity.

Yoon (1997) examined the relative importance of and interactions among factors which affected the QOL of 119 stroke patients aged 65 and older in Korea. The model used family support, hardy personality, economic status, and physical functioning as independent variables, and QOL as a dependent variable. The result of this study suggested that physical functioning and physical care by the family are important factors influencing QOL of the stroke patients.

*Post-stroke depression.* Many researchers have proposed that depression has relationship with QOL in stroke survivors. Ahlsio et al. (1984) found that depression and anxiety affect QOL as much as physical disability. Niemi et al. (1988) found that the incidence of post-stroke depression among patients was 48%, and a tendency to depression was one of the strong predictors of QOL. Similarly, King (1996) reported that QOL was negatively affected by depression, and it was the strongest predictor of overall QOL in 86 stroke survivors.

*Social support from family.* When referring to social support, people use this term to refer to a wide variety of phenomenon that characterize the social environment, or the people surrounding individuals in their network including the supportive way that different people behave in the social environment (Helgeson, 2003). Social support has also been defined in terms of “resources that meet individual needs or social relationships through which an individual’s needs are met” (Jacobson, 1986).

Social supports have been found to be associated with a higher QOL in stroke survivors. King (1996) identified variables that predict QOL after stroke in 86 stroke survivors and found that social support is one among the three predictors of QOL. Northouse et al. (1999) tested a model of factors that may affect QOL of 98 African American women with breast cancer and found that family function was one in many factors which had a direct effect on QOL. Women who reported more satisfaction with their family’s ability to help and support them reported a higher QOL

Family involvement became more important when the patient was cared for at home after discharged from hospital. Caplan (1974) noted that close relatives and

spouses are the best and usual sources of support. Baker (1993) found that a stroke patient's spouse can help in promoting adaptation of the stroke patient. The spouse positively affects the patient's adaptation by reducing the patient's stress, assistance with independent living, helping the patient to meet the needs and helping the patient to respond to a changing environment. Stroke patients without family support undergo emotional deterioration and often have a poor outcome for no apparent reason (Evan et al., 1992). It is evident that family members in a supportive family play an important role in providing the stroke survivors with social support, and emotional encouragement, as well as compliance with treatment protocol.

Tsouna-Hadjis et al. (2000) examined the impact of family social support on the rehabilitation process in terms of functional status, depression and social status changes of first stroke survivors. The study involved 43 patients admitted to the hospital with a first stroke over a five year period. Patient's rehabilitation variables were assessed in the hospital before discharge and also at 1, 3 and 6 months from stroke onset at the patients' homes. The study concluded that the amount of family social support can significantly predict the well-being of stroke patients.

Moreover, Santus, Ranzenigo, Caregnato, & Inzoli (1990) interviewed 76 elderly hemiplegic patients one year after their acute stroke to assess cognitive impairment, functional autonomy, depression and social integration. The results showed that 12.1% had cognitive impairment, 53.9% had functional physical impairment, 35.5% showed depression and 57.9% had problems in social and family integration (Santus, Ranzenigo, Caregnato, & Inzoli, 1990).

*Measurement of Quality of Life*

Buck and colleagues (2000) reviewed QOL assessment in stroke QOL research via MEDLINE search and found that there were two main groups of measures used in QOL research; generic and condition-specific measures (Buck, Jacoby, Massey, & Ford, 2000).

In generic QOL measures, certain domains will be key for all patient groups, but there may also be an absence of areas that are specific to a particular condition (Buck et al., 2000). Some instruments were used to measure post-stroke QOL in only a single study and/or they tapped only one domain of QOL. Examples of a generic QOL instruments are the Nottingham Health Profile (NHP), the Medical Outcome study 36-Item Short-Form Health Survey (SF-36), the Sickness Impact Profile (SIP), and the Euroqol (Saladin, 2000).

Condition-specific measures focus on the problems of specific illnesses. Currently, the stroke-related QOL measures are the Quality of Life Index-Stroke version, the Stroke Specific Quality of Life Measure (SS-QOL), and the Stroke Impact scale (SIS) (Saladin, 2000).

However, in order to select the appropriate QOL instrument, the advantages and limitations of the instruments must be considered. Saladin (2000) proposed three limitations of generic QOL scales. One potential limitation is the questionable suitability of these instruments for patients experiencing cognitive or language dysfunction who are unable to complete complex questionnaires. A second limitation is the reduced ability of generic scales to discriminate between individuals who rate their QOL as very low or very high. A particular scale is said to possess a significant



“floor effect” if a large number of individuals achieve the lowest score on a particular test. A “ceiling effect” is present if a large number of individuals achieve the highest score on a particular test. Significant floor and/or ceiling effects have been reported for SF-36 subscales (Dorman, Dennis, & Sandercock, 1999) and for the EuroQol (Brazier, Jones, & Kind, 1993). The last limitation of generic QOL scales concerns the content validity of these instruments as it applied to stroke survivors. The generic QOL measures appear to have a limited ability to sufficiently address stroke specific problem (Williams, Weinberger, Harris, & Biller, 1999).

The stroke specific QOL scales also have limitations, for example, these scales have just recently been developed and there is minimal data published regarding their use, but they were designed specifically to address the items most relevant to stroke survivors. The SS-QOL was not chosen for use in this study because of the complexity of the tool itself. Saladin (2000) suggested that the ideal instrument for measuring post-stroke QOL would be a reliable instrument for use with either patients or their proxies; it would have content validity; and it would be responsive to meaningful patient changes across a wide range of clinical presentations.

The Stroke Impact Scale was one instrument used to measure stroke related QOL. The advantages of the instrument are as follow:

1. It can detect the important consequences of stroke. Stroke impacts include not only physical function but also emotional, memory and thinking, communication and role function. This instrument addressed all three levels of the WHO model of disablement that provided a logical and inclusive framework for the classification of outcomes (Duncan et al., 2001). It contains items that measure

physical function of the arm and hand, cognitive ability, functional language ability, emotional function, basic and instrumental ADLs, and social participation.

2. It can be used with either stroke survivors or their proxies. Stroke survivors have cognitive and communication disorders that may interfere with self-report information on a patient's QOL, so a proxy respondent can be used to answer questions on the patient's behalf (Saladin, 2000). The patient-proxy agreement rate of the SIS is consistently good across eight domains. Proxies tended to score patients more severely ill in most domains. However, the effect was small and the average net difference was 3.6 points over a normalized range of 0 to 100 (Duncan et al., 2002).

3. It is reliable, valid, and sensitive to change for survivors with mild to moderate stroke. The content validity of SIS was done by individual interviews with stroke survivors and focus group interviews with 30 stroke survivors, 23 caregivers, and nine health care professionals (Duncan et al., 2001). The discriminant validity of SIS domains was examined by comparing the SIS to existing stroke measures and by comparing differences in the SIS score across Rankin scale levels (Duncan et al., 1999). The internal consistency and good test-retest reliability demonstrated that the SIS is a stable and reliable instrument that could be used to measure change over time.

*Nursing Intervention for Enhancing Quality of Life of Stroke Survivors*

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It has been postulated that functional ability, depression, and family social support are factors that may have contributed to the differences in QOL of stroke survivor (Bay, 2001). Nursing interventions that improve functional ability, prevent

or reduce depression of stroke survivors, and foster the relationship between the survivors and their family caregivers should increase stroke survivors' QOL.

*Research on Nursing Interventions for Enhancing QOL*

Previous studies on interventions for enhancing QOL have mostly been conducted with patients suffering from other chronic diseases, such as heart disease, cancer, and spinal cord injury rather than stroke. Among the 15 research studies on the interventions for enhancing QOL in chronic diseases, only three were conducted in stroke survivors. A review of previous literature showed that to enhance QOL, the patients and/or family needed to be educated, supported and counseled individually or in groups.

Karlar et al. (2004) evaluated the effectiveness of reducing burden of stroke in 300 patients and their caregivers. The caregivers in the experimental group received conventional care and caregiver training. The caregiver training included 3-5 sessions on basic nursing care and facilitation of functional personal care techniques. The results showed that trained caregivers experienced less caregiving burden, anxiety, or depression and had a higher QOL. Stroke patients in the experimental group reported less anxiety and depression and better QOL.

Kareen et al. (1993) studied the impact of a home leisure educational program on the depression and QOL of 13 older adults who had survived a stroke.

This program encouraged and supported the individual to self-manage his/her leisure activities. They found that the experimental participants were satisfied with their leisure activities that they practiced in a relatively autonomous way. The

experimental group obtained statistically better scores than the control group for the total, psychological, and physical QOL, but not for level of depression. Moreover, the experimental group showed significant improvement in the total and psychological/physical QOL variables, while there was no change in the control group.

In Thailand, there is only one intervention study that investigated QOL of stroke survivors. According to the researchers (Sathirapanya et al., 2002), this study used an empowerment program which was a six-day program with group process activities for stroke patients as well as biofeedback training and social support and skill training for their relatives in hospital setting. Data were collected at baseline before treatment, week 2, 4, 12, and 24. The result showed significant increases in QOL, self-esteem, self-efficacy, ADL and reduction of depression in the experimental group. The QOL of participants in the intervention group began to increase in week 4 and reached a peak level in week 12. Then it decreased again in week 24 (Sathirapanya et al., 2002).

According to the studies above, health education strategies can be used to enhance QOL of stroke survivors. The educational program also helped the survivor and family to improve functional ability and decrease depression of the survivor. However, whether the program should be hospital-based, home-based or community-based will depend on the characteristics of the learners, and their health problems, as well as their living condition. A home-based nursing intervention approach seems to fit with stroke survivors and family caregivers.

Health education is considered a tool for health promotion, behavioral modification, and the promotion of self-care and self-empowerment (Heady &

Hooper, 2002). The Standards of Clinical Practice describe nursing responsibilities for all individuals, including educating persons about their illness, treatment, health promotion or self-care activities, and planning for continuity of care (American Nurses' Association., 1991). Aspen Reference Group (1997) defined health education as “the process of assisting individuals, acting separately or collectively, to make informed decisions on matters affecting individuals, family, and community health” (Heady & Hooper, 2002). ANA’s Nursing’s Social Policy Statement included health teaching and health counseling among the responsibilities of the nurse, in addition to giving physical care, providing emotional support and assisting recovery or a peaceful death (American Nurses' Association., 1995).

Four nursing methods including teaching, skill training, counseling, and supporting are used with both the survivors and family caregivers. Teaching is a valid method of helping a person who needs instruction to develop knowledge or a particular skill (Orem, 2001). To use teaching as a method of health education, the nurse should know what the patient needs to know. When a teaching method is being used, patients need to see themselves as learners and realize that study is needed.

Skills training requires motivated individuals and includes explanations, demonstrations and practices; for example, relaxation, exercise. The skill-development method should provide explanation about the need for a procedure, demonstration of the procedure, and practical experience in the procedure. Skill training is most effective when techniques are required for coping with the situation that may be harmful to health. It should also be used only with participants whose values and intentions have been clearly defined (Egger, Spark, Lawson, & Donovan, 1999).

Supporting is the method of sustaining in an effort and preventing the patient from failing or avoiding an unpleasant situation or decision. When patients receive psychological or physical support, they can control and direct the action in the situation because they can initiate or persevere in the performance of the task, think about the situation and make a decision (Orem, 2001).

Counseling is another method that is commonly used in response to risk assessment measures or can be carried out in a general sense. It is also a nursing techniques that can be used to empower stroke survivors and family caregivers.

According to Orem (2001), the limitations in knowing what to do under existent conditions and circumstances and how to do it affect self-care ability of the patient. One way for stroke survivors to maintain self-care is to acquire technical knowledge and self-care from authoritative sources, to retain it, and to operationalize it. Providing support and information concerning the health needs of stroke survivors and family caregivers can help stroke survivors achieve this goal.

Wolfe (2000) reported that the four main things that caregivers want are information, skill training, emotional support, and regular respite. However, the nursing literature does suggest the importance of the nurse's role in information giving and counseling. Stroke survivors can learn new strategies and develop new attitudes through participation in education. The use of structured education can facilitate the adaptation of stroke survivors who have returned to living in the community (Johnson & Pearson, 2000).

Evans and his colleagues (1988) suggested that education is necessary, but not a sufficient means of helping families cope with emotional and behavioral changes associated with stroke, and supportive counseling is more effective than

education in reducing family dysfunction (Evan et al., 1992; Evans et al., 1988).

Open discussion of feelings and problems within the family may help to prevent re-hospitalization and promote rehabilitation. In addition, it appears to be important to assist families in improving problem solving and communication skills (Isberg, 2001).

Skill training is another important intervention for stroke survivors and family caregivers. When recovering from a stroke, rehabilitation is critical in helping the individual return to independent living. To restore the impaired functions, the survivors need to learn new skills in many areas including self-care skill, mobility skill, communication skill, cognitive skill, and socialization skill. Caregivers also need to know how to help stroke survivors to increase these skills.

In addition, Gibson (1991) suggested that providing support, participatory decision making, collaboration, negotiation, education, counseling and lobbying are nursing techniques that can be used to empower stroke survivors and family caregivers. As a provider, Funnell and Anderson (2004) suggested that nurse needs to spend more time listening and less time offering advice. During home-visits, nurses should establish a relationship with stroke survivors and their families to develop collaborative goals; stress the importance of stroke survivor's role in self-

management; begin each visit with an assessment of stroke survivor's and caregiver's concerns, questions, and progress toward solving their problems; review and revise the care plan as needed; provide ongoing information; assist them in solving problems and overcoming barriers to self-management; and support and facilitate stroke survivors and caregivers in their role as self-management decision makers (Funnell & Anderson, 2004).

### *Conceptual Framework*

In this study, the principle of health education and the view of QOL and the impact of stroke as presented by Duncan et al. (2001) are used as the study framework. Stroke causes impairments, disabilities, and handicaps to the victim. In stroke patients, common impairments include motor deficits, abnormal sensations, aphasia, visual-spatial neglect, cognitive deficits, depression, and changes in affect. These impairments result in disability that includes functional incapability. Common disabilities include problems with activities of daily living (ADL) such as mobility, eating, toileting, or the ability to manage higher-level cognitive activities such as managing finances or medications, shopping or driving. Handicap is defined as a disadvantage for a given individual that limits or prevents him or her from fulfilling a role that is normal for that individual (Duncan, 1998). Examples of handicaps include being bedridden or confined to home; being unable to use public transport; being socially isolated (United Nation, 2002). These impacts affect stroke survivor's QOL.

Personal factors including age, gender, marital status, income, and co-morbid diseases and stroke related factors including types and severity of stroke are associated with impairment, disability, and handicap, as well as survivor's QOL.

Health educational strategies including teaching, counseling, skill training, and supporting will make the survivor and family caregiver capable of doing physical rehabilitation and coping with their problems which further increase functional capability and reduce depression of the survivor. In addition, these strategies will increase the family caregiver's self-confidence in taking care of the survivor that make the survivor perceive more social support from the family (Figure 1.).



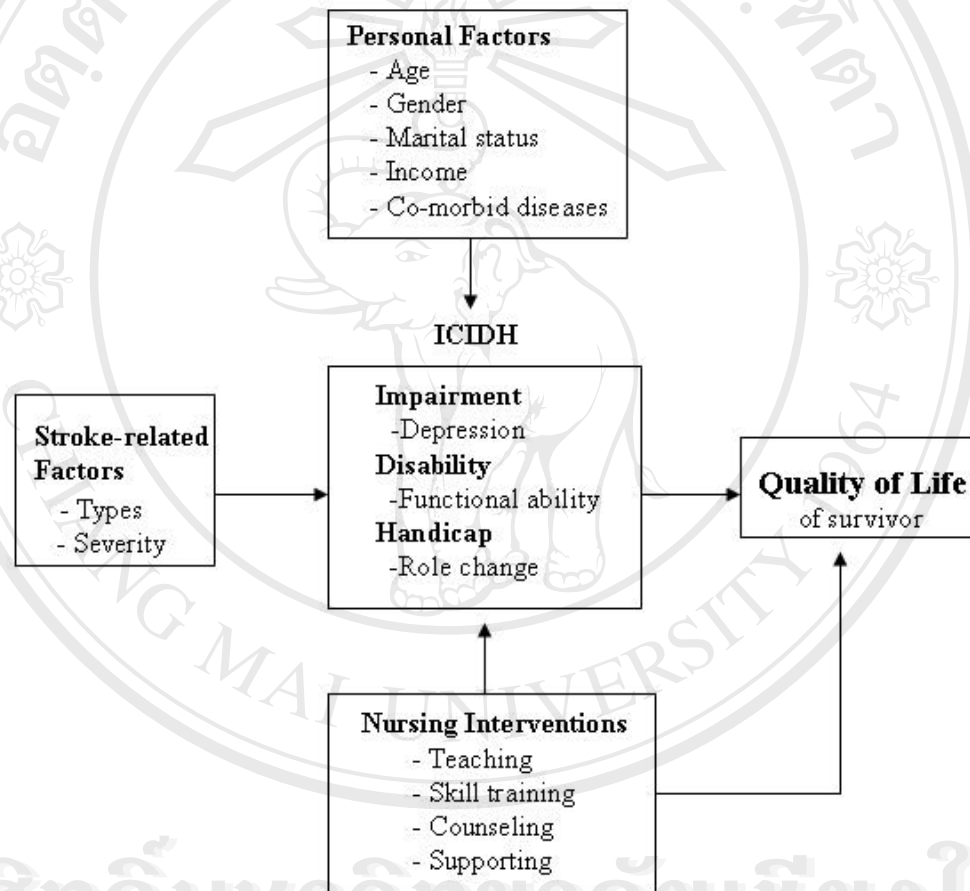


Figure 1. Conceptual framework of nursing intervention for enhancing QOL of stroke survivors.