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Patient Education Among Stroke Survivor Patients

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<p>Stroke is one of the most serious health problems in the world, cited as being the second leading cause of death. After stroke, there is a greater risk of suffering second and further subsequent stroke-events. Given the heavy burden of disease present by stroke, there is a great need to improve patient education for stroke survivors, who are at an increased risk of another cerebrovascular accident.</p> <p>The purpose of this thesis is to develop the quality of patient education in nursing care of stroke survivors. The aim of the thesis is to undertake a literature review of the content and methods of patient education for stroke survivors. Scientific articles were selected based on a clear demonstration of inclusion and exclusion criteria.</p> <p>The literature review included seven (n=7) articles. These articles were then analysed using content analysis with an inductive approach. The thematic categories from the content analysis included themes involving the changes in family dynamic and caregiver education, recognition and signs of stroke and information about rehabilitative and treatment options. The methods section contained information about interviews, pictorial aides, and individual time with a member of nursing staff.</p> <p>In conclusion, this patient population and their caregivers need more knowledge about stroke; including quality of life, prevention and rehabilitation after stroke. The patient education should be conducted through prolonged, regular intervals of individual interactions with nursing staff trained in various methods, especially with interviewing and pictorial aids.</p>	
Keywords:	stroke, patient education, nursing

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<p>Aivohalvaus on yksi maailman vakavimmista terveysongelmista, ja listattu toiseksi suurimmaksi kuolinsyiksi. Aivohalvaukselle ovat tyypillisiä myös myöhäisemmät aivotapahtumat. Potilasohjauksella on korostunut tarve aivohalvauspotilaiden kuntoutumisessa neuropsykologisten puutosoireiden vuoksi sekä mahdollisten uusien aivotapahtumien ehkäisyssä.</p> <p>Tämän opinnäytetyön tarkoituksena oli kehittää potilasohjauksen laatua aivohalvauspotilaan hoitotyössä. Työn tavoitteena oli kirjallisuuskatsauksen keinoin tuottaa tietoa aivohalvauspotilaiden ohjauksen sisällöistä ja menetelmistä. Tieteelliset artikkelit valittiin katsaukseen sisäänotto- ja poissulkukriteerien avulla.</p> <p>Kirjallisuuskatsaus sisälsi 7 artikkelia. Artikkelit analysoitiin induktiivisella sisällönanalyysillä. Analyysin tuloksena aivohalvauspotilaiden potilasohjauksen sisällöiksi muodostui perhedyntamiikan muutosten huomioiminen ja läheisten ohjaus, aivohalvausoireiden tunnistaminen sekä kuntoutus ja hoitovaihtoehdot. Potilasohjauksen menetelminä mainittiin haastattelu, kuvien käyttö ja henkilökohtaiset keskustelut hoitajien kanssa.</p> <p>Yhteenvedon, aivohalvaus potilaat ja heidän läheisensä tarvitsevat lisää tietoa itse sairaudesta sisältäen tietoa elämänlaadusta, sairauden ehkäisystä ja kuntoutumisesta. Tietoanto tulisi tapahtua säännöllisin väliajoin, pitkällä aikavälillä erilaisilla menetelmillä koulutetun hoitohenkilökunnan antaman esimerkiksi haastatteluiden ja kuvien avulla.</p>	
Avainsanat:	stroke, patient education, nursing

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1 Introduction

Stroke is one of the top four leading causes of death in both high and middle-income countries (Rowland, 2005; World Health Organization, 2013), and it is the most significant reason for rehabilitation worldwide (Meretoja, et al. 2007). In the United Kingdom, stroke is the single largest cause of adult disability (DH/Vascular Programme/Stroke, 2007). In the United States, stroke is the third leading cause of death with 500,000 people experiencing the onset of the cerebrovascular disturbance every year. With over 4 million survivors, stroke is the leading cause of serious long-term disability in the United States (Smeltzer, 2004). In Finland cerebrovascular accidents are the second most significant fatal disease (Meretoja, et al. 2007). To give an example of the prevalence of stroke, in the United States alone stroke occurs every 40 seconds, and on average every 4 minutes someone dies of stroke (American Heart Association, 2014). The onset of stroke is sudden, and can affect any person at any age. After someone experiences stroke-like symptoms, urgent medical attention is required in order to mitigate adverse effects that come about from the loss of basic brain function (Potter, et al. 2013).

Ischemic stroke occurs due to a lack of oxygen supply to the brain caused by a blockage in normal brain perfusion. Haemorrhagic stroke is caused by bleeding from a burst blood vessel. Both forms of stroke have a detrimental effect on healthy brain tissue as result of a decrease of healthy cerebrovascular functioning; a vital factor for maintaining and regulating sentient human action (Alway, 2009; Potter, et al. 2013). Patient education in nursing practice is essential for overall better outcomes after stroke (Duncan, et al. 2005; Alverzo, et al. 2007). These outcomes affect every facet of the quality of life of a survivor after stroke. The purpose of this thesis is to develop the quality of patient education in nursing care of stroke survivors. The aim of the thesis is to undertake a literature review of the content and methods of patient education for stroke survivors.

2 Theoretical Background

2.1 Definition of Stroke

Stroke is a general term used to describe a variety of cardiovascular accidents involving the damage or loss of brain tissue due to a lack of oxygen (Office of Communications and Public Liaison, 2014; Bunker Rosdahl & Kowalski, 2008; Smeltzer, 2004). Patients that are afflicted with stroke are a major public health concern in both the developed and developing world (WHO, 2013; Rowland, 2005). The World Health Organization defines stroke as “rapidly developing signs of focal (at times global) disturbance of cerebral function, lasting more than 24 hours or leading to death with no apparent cause other than that of vascular origin” (Truelsen, 2006). The Stroke Association UK describes stroke as a ‘brain attack’, which is a stoppage of the blood supply to part of the brain, due to a blockage in a blood vessel connected to the brain or an internal bleed (Stroke Association United Kingdom, 2014). The interruption of blood flow to the brain will have an immediately detrimental effect on the sound operation of cerebrovascular regions. This event leads to a destabilization of global function within the centre of the cerebrum that prevents healthy cognitive brain function. (Stroke Association, 2013.)

2.2 Pathophysiology and Symptoms of Stroke

Pathological sources of stroke that lead to disturbances in cerebral blood circulation are classified into two major categories: ischemic, in which vascular occlusion and low perfusion occurs; and haemorrhagic, in which extravasion of blood into the brain occurs (Potter, et al. 2013; Alway, 2009; Truelsen, 2006; Smeltzer, 2004). Ischemic stroke is the most prevalent amongst patient populations by far, consisting of approximately 87% of all strokes (American Heart Association, 2014; Smeltzer, 2004). During ischemic stroke a blockage to the blood supply within or to the brain is caused by an obstruction such as a thrombus. A thrombus is the formation or presence of a blood clot within a blood vessel (Smeltzer, 2004). These two categories of stroke are represented in the following illustration (Figure 1).

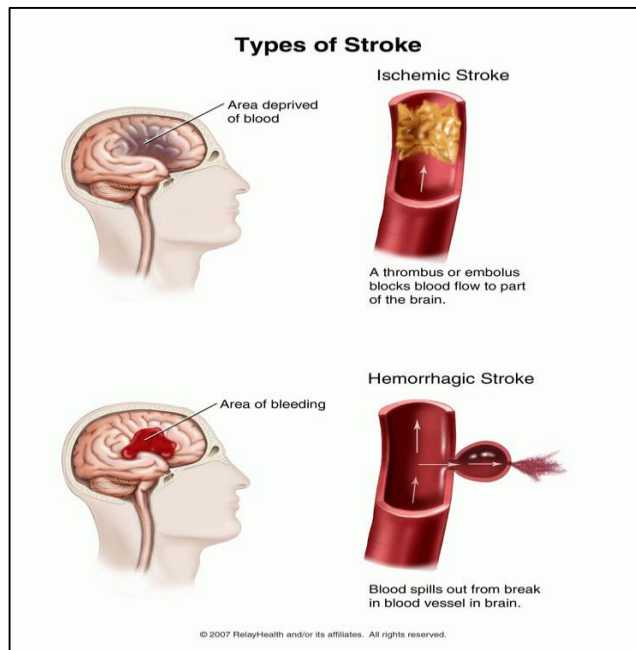


FIGURE 1. Examples of stroke in cerebral vein (Relay Health and/or affiliates, 2007)

Hemorrhagic stroke is due to intracerebral hematoma or bleeding, and may occur in the brain tissue, the four connected fluid-filled ventricles in the centre of the brain or the subarachnoid space. The neurological deficit in intracerebral haemorrhage commences more slowly than in an ischemic stroke, though bleeding can be seen immediately on a Computer Tomography scan. (Donaghy, 2005.) Hemorrhagic stroke is more deadly, and also rare, consisting of approximately 13 percent of all stroke cases (American Heart Association, 2014). A haemorrhage is most generally associated with persistent hypertension; however, pathological findings of micro-aneurysms are present as well (Smeltzer, 2004; Rowland, 2005). If the neurological deficit lasts for over 24 hours, it is classified as a completed stroke. However, any neurological deficit lasting for less than 24 hours is classified as a transient ischemic attack (TIA) (Donaghy, 2005). Clinical manifestations of stroke exhibit themselves with a wide range of neurological deficits. Some of these symptoms include immediate numbness in the head, face, arm or leg; especially on one side of the body (Sander, 2013); unusual confusion or trouble speaking or understanding speech; sudden trouble seeing in one or both eyes; immediate trouble with walking, dizziness, or loss of balance or coordination; or sudden severe headache with no known cause (Smeltzer, 2004; Alway, 2009; Office of Communications and Public Liaison, 2014).

Reported symptoms of stroke include, but are not limited to complications with communication and emotions, and physical/visual disorders. The most common symptom of stroke is functional disturbance on one or both sides of the body (Atula, 2012). Some other symptoms include unexplainable altered states of consciousness, sudden numbness on one side of the face or body, slurred incoherent speech, and weakness (Atula, 2012; National Stroke Association, 2014; Suomalainen Lääkäriseura Duodecim ja Suomen Neurologinen Yhdistys ry, 2014). In the acute stage, symptoms for both types of stroke share some common traits.

The cerebellum is divided into two sides, the right hemisphere and the left hemisphere. (Bunker Rosdahl & Kowalski, 2008) Different stroke symptoms which manifest themselves do not reveal the specific type of stroke that may have occurred. Instead, the etiology of stroke is determined by several diagnostic tools (Suomalainen Lääkäriseura Duodecim ja Suomen Neurologinen Yhdistys ry, 2014; Alway, 2009). A left-sided deficit in the brain will cause right-sided symptoms on the body and vice versa with right-sided deficits (Bunker Rosdahl & Kowalski, 2008). Depending on where the infarction has taken place other symptoms may exist such as visual problems, vertigo, confusion (Atula, 2012), and difficulty in swallowing (Suomalainen Lääkäriseura Duodecim ja Suomen Neurologinen Yhdistys ry, 2014).

2.3 Risk Factors of Stroke

The most significant risk factors of stroke according to The Brain Union of Finland, *Aivo-liitto* are as follows: high blood pressure, arterial fibrillation, diabetes, history of cerebrovascular events, high cholesterol, excessive alcohol use, obesity, sedentary life-style, and prolonged periods of stress (Aivo-liitto ry, 2014). The role of informing and educating stroke survivors and their families about modifiable and treatable risk factors for stroke in their daily living conditions, as well as non-modifiable risk factors, has been traditionally viewed as a nursing responsibility considered to be an integral component of the nursing process (Bastable, 2008). Modifiable risk factors include medical and behavioural risk factors. Medical risk factors are hypertension, dyslipidaemia, diabetes mellitus, sleep apnoea and metabolic resistance. Behavioural risk factors include diet, obesity, and smoking (Prabhakaran & Chong, 2014). Cigarette smoking has been linked with an elevated risk for ischemic stroke in particular (The National Centre for Smoking

Cessation and Training, 2011; Prabhakaran & Chong, 2014.) Educating stroke survivors about risk reduction can help promote lifestyle changes that are paramount for preventing further cerebrovascular complications.

Age is the most significant non-modifiable risk factor, as every consecutive decade after the age of 55, stroke rates more than double for both men and women (Hollander, et al. 2003; Michael & Shaughnessy, 2006). Worldwide, men have a greater incidence of stroke; however women tend to suffer more severely (Appelros, et al. 2009). An increased rate of incidence of stroke among immediate family members establishes a familial relationship as a valid risk factor. In the Framingham Study research (Kiely, et al. 1999) concluded that both paternal and maternal histories were associated with an increased risk of stroke. Subsequently, a follow-up study undertaken by a different group of researchers a decade later concluded with highly similar results (Seshadri, et al. 2011). Research also shows a correlation between poor dental hygiene and a heightened risk for stroke. This mechanism however is not yet fully understood (Joshiyura, 2003). Knowledge of stroke risk-factors is mandatory to help a stroke survivor avoid a potentially debilitating or even deadly secondary stroke.

2.4 Patient Education and Nursing care

Patient education is an organized activity geared towards both the patient, and also their family members to support and encourage health behaviour for active participation in all aspects of self-care leading to better outcomes and health promotion (Bastable, 2008; Patient Education Institute, 2013; Potter, et al. 2013). Nurses serve as educators and must be well-informed about evidence-based practices offering effective strategies to reach a diverse patient population (Carpenter, 2002; Bastable, 2008). In nursing, patient education is a responsibility backed by legal bodies and is an essential intervention to ensure compliance and better overall outcomes (Bastable, 2008; Potter et al. 2013). Patient education is a standard function held traditionally within the nursing scope (Smeltzer, 2004) and its purpose is to cultivate empowerment in terms of competence and confidence for healthy self-management (Bastable, 2006). Nurses assess and meet specific health care needs for stroke survivors by utilizing the key steps from the nursing process: assessment, nursing diagnosis, planning, implementation, and evaluation of patient education when coordinating education activities (Bastable, 2008). An educational process, much like the nursing process is one method to build a solid base to

ensure quality of the nurse-directed patient education (Bastable, 2008; Potter, et al. 2013).

Patient education is essential aspect of nursing care, because it can determine how well individuals and families are able to maintain and improve health status, restore health and cope with illness-related functional impairment (Potter, et al. 2013). Patient-focused interventions are generally aimed at one or more of the following quality improvement goals: improving health literacy, improving clinical decision-making, improving self-care, improving patient safety, improving access to health advice, improving the care experience, improving service development (Coulter & Ellins, 2006). Quality patient education leads to fewer unnecessary hospital visits, greater satisfaction among patients and better rehabilitation outcomes (Männikkö, 2014). Goals of education for patients include increased participation in decision making and in continuing care, increased potential to follow agreed-upon treatment regimen, maximization of patient and family stroke care skills, improvement of patient and family coping skills, and promotion of a healthy lifestyle. The elements of patient education interventions include the following (Commodore-Mensah & Dennison Himmelfarb, 2012):

- Approach to education; relating to the communication in the process of education,
- Mode of delivery; the choice of methods to impart educational information,
- Dose; the amount and frequency of educational sessions

2.5 Importance of Patient Education for Stroke Survivors

Patient education offered to a stroke survivor focuses on their stroke experience and should encompass a wide range of topics (Dicarlo, 2009). After a stroke, patients and families are often physically and psychologically unprepared for learning during hospitalization. Patients' level of illness, anxiousness, exhaustion, cognitive function, and health literacy may influence the participation and overall benefit from patient education activities (Commodore-Mensah & Dennison Himmelfarb, 2012). Patient education is important for this specific patient group as the risk for recurrent stroke is strikingly higher for stroke survivors (Prabhakaran & Chong, 2014); furthermore education promotes awareness of the many possibilities offered to the patient through rehabilitation for quality in activities of daily living after possible physical or cognitive impairment in the home and within the community. (Smeltzer, 2004; Dicarlo, 2009.)

Health care professionals that implement an effective rehabilitative process through patient education early on after the onset of stroke; which is thorough and effective in its approach, reduce mortality and long-term disability (DH/Vascular Programme/Stroke, 2007). Patient education among stroke survivors covered by health care professionals includes: mobility and movement, communication, everyday care activities, i.e., dressing, washing, meal preparation, depression and distress, swallowing, nutrition, cognitive difficulties, continence, relationships and coitus (DH/Vascular Programme/Stroke, 2007).

A barrier in patient education among stroke survivors involves neuropsychological deficit. Post-stroke neuropsychological complications include decreased level of consciousness and cognitive impairment, (Suomalainen Lääkäriseura Duodecim ja Suomen Neurologinen Yhdistys ry, 2014) visual/motor impairment, aphasia, and/or difficulties with memory retention (Caoa et al. 2006). Neuropsychology encompasses both the psychiatric manifestations of neurological illness (primary brain-based disorders) and neurobiology of "idiopathic" psychiatric disorders (Sinanović, 2010). The neuropsychological deficits after stroke are related mainly to cognitive changes that may present behavioural deviations (Ekes & Barrett, 2009). After stroke, survivors require neuropsychological evaluation and possibly rehabilitation as well. The duration of neuropsychological rehabilitation is accordingly to the experienced symptoms of difficulty with learning, memory, reasoning, and judgment (Atula, 2012). Even with good recovery, neuropsychological deficits are often a stubborn outcome, staying with the stroke survivor despite signs of full recovery (Planton et al, 2012).

A patient may be physically and psychologically overwhelmed by the life-changing event of suffering through a stroke go through phases of denial and fatigue or be busy with the rigors of the treatment program while in hospital (Ostwald, et al. 2008). Neuropsychologists work in conjunction with a team of health care professional to overcome any barriers in stroke education (Suomalainen Lääkäriseura Duodecim ja Suomen Neurologinen Yhdistys ry, 2014).

3 Purpose, Aim and Study Questions

The purpose of this thesis is to develop the quality of patient education in nursing care of stroke survivors. The aim of the thesis is to undertake a literature review of the content and methods of patient education for stroke survivors.

Nurses from a variety of health care settings, working with stroke survivors and their families can utilize the findings of this literature review to improve the quality of nursing care in patient education.

The study questions of this thesis are:

- What is the content of patient education for stroke survivors and their families?
- What method is used to provide patient education for stroke survivors?

4 Data collection methods and data analysis

4.1 Literature Review as a Methodology

The method of research used in this thesis is a literature review. A literature review is a specific data collection process; that is simultaneously broad, comprehensive in-depth and systematically organized (Johansson et al., 2007; Aveyard, 2010). It serves as a critique of research reports and theoretical literature and can be used to strengthen and support a frame of existing knowledge in a certain area of conveyed research or technical, as in nursing practice (LoBiondo-Wood & Haber, 2010). The functionary angle of literature reviews have been brought into focus, and their capacity to inspire, innovate, and detect gaps within the world of research (Polit & Beck, 2006; DeSantis & Ugarriza, 2000). Furthermore, research results from literature reviews provide evidence-based knowledge to create or alter practices or guidelines in their field (Polit & Beck, 2006). In literature reviews, study questions guide the pathway from beginning to end and serve as tools used to build and shape the research process (Polit & Beck, 2006; Aveyard, 2010.)

4.2 Data Collection

Data collection has been conducted with the help of online database searches and a nursing journal accessible online. CINAHL and MEDLINE databases were accessed for collection of data. CINAHL stands for the Cumulative Index of Nursing and Allied Health Literature and is the largest and most in-depth nursing research database (University of Washington Bothell, 2014). MEDLINE is an acronym for Medical Literature Analysis and Retrieval System Online. For manual search, the online nursing journal that was reviewed was the *Journal of Neuroscience Nursing*. This nursing journal was used because of its scope into the specialized area of neurology nursing; it contains original articles on advances techniques that affect nursing care, theory and research. This journal was chosen to attain a deeper understanding and wider scope on the processes of patient education for stroke survivors.

Inclusion criteria and exclusion criteria were applied. For literary searches in this final project, the inclusion criteria for the articles chosen were as follows:

- a. Research based on empirical evidence.
- b. Published research from the beginning of 2004 through to 2014.
- c. Research published in the English language.
- d. Research done in the area of patient education and stroke.
- e. Research that presented the current situation in the clinical practice of nursing.

The exclusion criteria for the search were stroke articles that had no relation to nursing practice, that were published before 2004, that were published in other languages besides English, or were not able to answer the research questions.

The literature search began in March 2014, by using keywords as search terms. The keywords used were Stroke, Patient Education, and Nursing (Refer to Table 1). Selected articles were first read through carefully. The key information such as the purpose, analysis and results from each piece of literature was placed into a framework table. A total of seven (n=7) articles were selected for inclusion in the review. (Appendix 1.)

Table 1. Database search March 2014

DATABASES	Search terms	Years	Search hits	Found full text	Found abstracts	Language criteria fits	Duplicate removal	Total Number	Fits title	Fits content criteria	Added by manual search	Taken into analysis
CINAHL	stroke AND patient education AND nursing	2004-2014	142	47	33	33	none	52	17	4	3	7
MEDLINE			69	23	19	19	none					

4.3 Data Analysis

After data collection, the selected articles were committed to a qualitative data analysis. The analysis chosen in this study is a content analysis with an inductive approach.

A content analysis is a systematic series of actions directed so that narrative data may be organized and integrated from qualitative information which leads to consistent themes and concepts. A content analysis is a technique used in research, for objective, systematic and qualitative explanation of evidence for classification of words, themes, concepts into categories primarily presented through a template or by an edited analytical style (Burns & Grove, 2005; Libiondo-Wood & Haber, 2006; Polit, 2006). Furthermore, a content analysis is a method that can be implemented inductively or deductively in either qualitative or quantitative data to classify and categorize words, phrases and sentences according to theoretical importance (Elo & Kyngäs, 2008; Burns & Grove, 2005). Three main phases were identified as being the cornerstones in both inductive and deductive analysis processes. The first phase begins with preparation of data, the second phase is organization of data and the third phase introduces the reporting of the data. (Elo & Kyngäs, 2008; Polit, 2006).

The inductive approach (Figure 2) taken in this analysis began with the preparation of research data. In the first stage, the selected articles were carefully read and reread to become familiarized with the data. Then, pertinent information from each article was

placed into framework (Appendix 1) tables to collect and review the most important data to answer the study questions.

In the second phase of the analysis, organization of the data was completed. The phase brought about categories of themes to answer the research questions. The themes that emerged in the analysis gave meaning and relation to the study questions. The third phase and final stage introduces the reporting of the findings. The findings were reported in subcategories according to their relationship to either 'content' of 'method' of patient education. Once the patterns emerged the main findings were an objective source for the synthesis of a new body of knowledge.

5 Findings

In this chapter, the main findings will be presented according to the study questions.

5.1 What is the content of patient education for stroke survivors and their families?

As a result of an inductive content analysis, data were gathered and organized into three main themes related to the content of patient education for stroke survivors.

These themes include:

- (1) Changes in family dynamic and caregiver education,
- (2) Knowledge of Stroke: recognition of symptoms and risk factors,
- (3) Information about rehabilitative and treatment options.

5.1.1 Changes in family dynamic and caregiver education

With neurological diseases and neurological events, such as strokes, the brain injury may prevent a stroke survivor from fully understanding/gauging their own mental state or mood. A health care professional cannot take the same approach with stroke patients as with patients with other chronic illnesses. Constant collaborative communication and feedback must be developed and enhanced within a patient's "circle"; the nursing staff, acute care staff and the family must be involved to assess the patient's own learning style, ability and needs (Cameron, 2013).

The content of patient education takes into account the role of family, caregivers, and the importance of other person's influence in general (Byers, et al. 2010). Caregiver education is as important as the patient education delivered to stroke patients. In cases where the stroke has left the patient with severe functional impairment or communication problems, it becomes clear that the nurse must focus their instruction to the caregiver (Klinedist, et al. 2012). Health care providers can obtain a wealth of information on a patient's background, and document all information about the patient's condition obtained from the patient, caregiver and other stakeholders. Patient education content which includes information on the monitoring of physical and psychological symptoms may be geared to caregivers for this purpose (Klinedist, et al. 2012).

Family members of patients receive education about the activities, events or any other stimuli that may disturb the patient along with new roles that may come to play as the patient is discharged. Long-established roles within the family may be greatly altered. When families receive education on the care of their loved ones, the nurse must have a slightly different focus on stroke prevention, diagnosis, treatment, rehabilitation, and management. One main focus of patient education with families is the maintenance of a safe management at home for both the family and patient (Cameron, 2013.)

Stroke patients that live with caregivers or family members may be better suited to receive family-centred approaches in patient education. This enables the family to fully understand their roles in the healing process of the patient and the possible adjustments that result from a change of roles within the family while addressing the inevitable challenges that come about with caring for a family member that experienced a near-fatal experience (Visser-Meily et al. 2006, cited in Cameron, 2013.)

A nurse assumes an emotional and supportive role in their relationship with the patient and their family. A nurse needs to come to an understanding of the patient through a deeper knowledge of the patient defined by (Ström, et al. 2011 cited in Cameron, 2013) as "the knowledge, beliefs, and viewpoints constructed by patients about their own illness." With this deeper knowledge, deeper understanding and therefore success with patient education may be attained.

5.1.2 Knowledge of Stroke: recognition of symptoms and risk factors

A unique nurse responsibility is to provide knowledge about stroke signs and symptoms, risk factors, available treatments, and the “Time Is Brain” concept (Kitko, 2008). Patient educational content include general information on risk factors both modifiable and non-modifiable, stroke signs and symptoms, and treatment (Kitko, 2008; Cameron, 2013). Among these, the most significant factor in patient education content is arguably the immediate recognition of signs and symptoms of a stroke (Byers, et al. 2010).

Educating patients about key identification and treatment of stroke signs and symptoms decrease misconceptions that may increase personal risk for continuous injury to the brain. Misconceptions about stroke signs and symptoms should be addressed. Careful assessment of stroke aftermath is important because stroke-related impairment may lead to confusion among stroke survivors and their caregivers about depression or mood disorder, for example, difficulty with decision making after stroke may be mistaken as symptoms of depression. Other misconceptions exist, such as hair loss being related to depression, and caregiver education is paramount especially in the treatment of functionally impaired stroke survivors and those with challenges in communication. (Klinedist, et al. 2012).

The prevention of disease is based on a patient’s unique risk factors. Health care professionals focus on a preventive method for stroke. Blood pressure control, cholesterol management, medication adherence, early recognition of warning signs and the ability to contact emergency services at a moment’s notice were all covered in patient education material (American Stroke Association, 2005; Cunningham, Smith, & Dimer, 2006 cited in Cameron, 2013; American Heart Association, 2014).

5.1.3 Information about rehabilitative and treatment options

In stroke education among newly diagnosed stroke patients, a study discovered that stroke survivors felt it was at highest level of importance to acquire information about treatment of stroke with medication. Stroke survivors became increasingly interested in surgical treatment over an extended period of time however, herbal medication and alternative treatments were considered to be the least important during the entire time frame of the study (Yonaty & Kitchie, 2012.)

The content in patient education regarding treatment options may contain basic information of the part of the brain affected by stroke as well as the pathophysiological connection to stroke aftermath the stroke survivor may experience temporarily or permanently (Ho & Yan, 2010; Smith, Forster, & Young, 2004 cited in Cameron, 2013).

An assessment completed by a nurse geared towards stroke patients about symptoms of post-stroke depressive symptoms, is helpful in finding survivors possibly in need of professional help to eradicate mental health imbalances. Stroke survivors are a high-risk group for depression and should be referred to a neuropsychologist or psychiatrist, for further assessment education regarding treatment of depression. (Miller et al. 2010 cited in Klinedist, et al. 2012).

There is limited research done to explore deciding factors that lead ailing people to seek out treatment, however the lengthened time frame between symptom onset and presentation at a care centre results in a consequent limitation in availability of treatment options (Kitko, 2008). Patient education describes detailed information surrounding treatment options, completed medical interventions, rehabilitation schemes and objectives and importantly compliance and adherence to guideline set forth by health care providers (Ho & Yan, 2010; Smith, Forster & Young, 2004 cited in Cameron, 2013; Klinedist, et al. 2012.)

Education concerning treatment options should involve discussion about previous experiences. Reliable education addresses frustrations and concerns about stroke treatment (Kitko, 2008). Positive multiple disciplinary teamwork is considered to be essential for dependable patient and family education (Farahani et al. 2011 cited in Cameron, 2013.)

5.2 What method is used to provide patient education for stroke survivors?

5.2.1 Interview

Family members often become the primary caregivers of the family member that has suffered a stroke. This new dynamic often leads to changes in interpersonal relationships within the family. In healthcare settings, collaborative approaches between caregivers,

patients and the healthcare service provider lead to an ideal environment for optimal motivational interviewing practice with post-stroke patients (Byers, et al. 2010).

By providing each patient with an individualized stroke education sheet and by employing motivational interviewing techniques, patients increased their stroke knowledge and satisfaction vis-à-vis stroke education after their discharge from acute settings (Byers, et al., 2010). This was carried out in an optimal, collaborative environment along with caregivers in the clinical setting (Byers, et al. 2010). Another indication that the role of the caregiver is significantly related to good patient outcome is shown in one study that demonstrates that patients living alone are more at risk to suffer severe stroke complications. Those who lived alone may experience symptoms at night, which put them at higher risk to be excluded from receiving certain time-sensitive medication, in particular treatment that requires a relatively short 3-hour treatment window after onset of symptoms (Kitko, 2008).

Motivational interviewing with the patient and caregiver has been shown to be successful with patient outcomes focused on improving knowledge about stroke.

In one study, hospital staff had success with patient education outcomes after providing stroke patients with a patient education program which utilized an enhanced learning model. This model involved motivational interviewing with the patient and caregiver.

This approach was applied because it was believed that patient satisfaction and knowledge would increase in parallel with an enhanced learning method that increased the patient's comprehension with thorough and relevant educational material tailored to the patient's personal needs and expectations (Byers, et al. 2010). Enhanced education has been described as being an effective method in improving knowledge about stroke (Byers, et al. 2010). This same study also illustrated the result that conducting motivational interviews by a health care professional is vital in achieving improved health care outcomes. This innovation in education allows for the development of stroke patient education programs and brings uniform rules to patient education programs. The risk of future stroke may be decreased if health care professionals individualize the discharge process. This process is achieved by delivering patient-centred, relevant educational material, and by thoroughly educating the patient and caregiver on all aspects of stroke in relation to their own lives (Byers, et al. 2010).

5.2.2 Written or Pictorial Information

Research suggests that a combination of nurse-conducted patient education and educational content with written or pictorial information to be reviewed by the stroke survivor as well as the caregiver(s) after discharge may be more effective for educating stroke survivors and their families. The patient education materials may include information about post-stroke depression, information about the signs and symptoms of post-stroke depression, and the fact that one or two depressive symptoms may be stroke-related; the causes, consequences, record of typical symptoms; and treatment options with their perspective benefits should be included in the content of patient education. (Klinedist, et al. 2012.)

5.2.3 Individual interaction with nursing staff

Awareness of stroke symptoms and conditions increase substantially over intervening periods after discharge for patients but this awareness does not necessarily lead to improvements in lifestyle (Green, et al., 2007). A patient's risk factors for a secondary stroke did not change statistically. Studies (Joseph et al. 1999; Allen, Hazelett, Jarjoura, Wickstrom, Hua, Weinhardt, 2002; Dennis, O'Rourke, Slattery, Staniforth, & Warlow, 1997 cited in Green, et al. 2007) show that there is only a limited effect on attaining a sustained healthier lifestyle transition if stroke patient education is only administered once in demonstrating a patient's readiness to change. This observation was seen even though excellent personalized support and information improved a patient's knowledge and satisfaction with the care provided (Green, et al., 2007). Individual interactions with nursing staff that take place over an extended amount of time were found to help patients attain optimal lifestyle changes (Forster & Young, 1996 cited in Green, et al. 2007). Family members/caregivers need a platform to share their experiences, as they may be perhaps more involved with enforcing compliance than the stroke survivor (Kitko, 2008.)

5.3 Factors associated with patient education for stroke survivors

Factors that repeated came up from the literature that effect patient education for stroke survivors and important to consider as they have an effect on both how content and methods will be arranged in patient education. These factors include:

Stroke survivor age, time reserved, simultaneous therapeutic programs, misconceptions, race, educational background, and dose of educational sessions (Cameron, 2013; Yonaty & Kitchie, 2012; West, et al. 2012; Kitko, 2008; Green, et al. 2007; Byers, et al. 2010.)

Health care professionals cannot be present in the home and therefore must include the primary care giver in all education activities, and anticipate the state of affairs in the patient's home environment. For example, changes may occur in both the emotional and sexual relationships that have existed between the patient and his or her spouse. In these cases, the entire family, not just the patient, may need guidance and emotional support from health care professionals even after discharge (Marcach & Griffle 2011 cited in Cameron, 2013). In some cases, it has been shown that the family is unwilling or unable to follow the recommended or necessary dietary and physical activity regimens to which a patient must adhere. In some cases, nursing staff did not consider the potential learning strategies that patients could use in the home, such as using the internet or other technology in order to find support groups for coping with stroke in daily life (Green, et al. 2007). There is no specific demographic for people to suffer a stroke.

6 Reliability and Validity

Quality in conducted research is attained by the stability and rigor in critical appraisal of any previous research project's methodology (LoBiondo-Wood & Haber, 2010). In the process of conducting this literature review, an emphasis was placed on maintaining the reliability and validity of the research process. In literature reviews, research questions serve as tools used to build and shape the research process (Aveyard, 2010). The reliability and validity of each research phase (data collection, data analysis and in the reporting of the main findings) was monitored and evaluated for appropriateness, objectivity, and consistency of the method in use (LoBiondo-Wood & Haber, 2010). Preferences and biases were controlled by following standard guidelines in the data collection which included a literature search, followed by a qualitative content analysis conducted with the inductive approach. This work includes efforts to critically analyse the literature used. Every effort was made to reduce bias. Studies from different perspectives were cited. There were limited possibilities to utilize a platform for feedback or peer-review due to

the fact that there was one sole interpreter of the data. This situation possibly has weakened the reliability of the data collected.

The academic institution Metropolia University of Applied Sciences grants students accessibility to view the professional nursing and medical databases CINAHL and OVID in their entirety. The Ovid/Medline database has a broad reach within the health care field. The CINAHL (Cumulated Index to Nursing and Allied Health Literature) database was chosen secondarily to provide a focus in nursing and because of the opportunity to reach more available research. Measures were taken to insure that the research process followed the instructions put forth by the supervisors. All sources were given credit via mention in the references section. The main findings of the literature review answered the study questions posed.

7 Discussion

7.1 Major findings

Research indicated that a vast amount of the public persists with low or no recognition of stroke signs and symptoms (Kitko, 2008) a concern that highlights a real need for enhanced health education measures. Another factor that further pressures the need for changes is the lack of knowledge among stroke survivors and their caregivers; results showed that in some cases, caregivers and stroke survivors only had moderate knowledge of the depressive symptoms, and for this reason, misconceptions arose (Klinedist, et al. 2012). This mirrors the need to include this education concerning signs and symptoms and risk-factor information in the content of patient education. A poor knowledge base and even misconceptions related to stroke occurring in the elderly remains the prime reason for late presentation of suspected stroke cases to hospital care, especially when initial symptoms are mild to moderate (Kitko, 2008).

Research repeatedly mentioned the importance of clarifying misconceptions among caregivers concerning post-stroke conditions, such as post-stroke depressive symptoms. The topic of post-stroke depression in particular was highly prominent in the literature. Although caregivers and stroke survivors had moderate knowledge of depressive symptoms, misconceptions about post stroke depression existed and ultimately affected

rehabilitation and overall outcome negatively. This lack of knowledge often delayed treatment seeking initiatives and thus affected optimal recovery. A solution to this dilemma, proposed in the literature, was to monitor post-stroke depressive symptoms. Physical and mood disorders both should be an integral part of core post-stroke patient education with an emphasis on caregiver participation. Research suggested that knowledge about depressive symptoms and mood disorders may help detect early signs of mental health decline and thus, a need for assessment and possible treatment. (Klinedist, et al. 2012).

Nurses occupy a special position in the assessment of stroke survivors and the provision of patient education. This unique position comes about as a result of their round-the-clock proximity with stroke survivors and their families in clinical settings. Nurses are particularly prepared to educating patients about post-stroke conditions, in allaying the patient's fears, and in correcting any misunderstandings that may arise. This cooperative and beneficial relationship leads the nurse to potentially influence a patient's mood and quality of life not only in acute settings, or in home care, but through a holistic pathway that may impact the patient and their family for the remainder of their life (Klinedist, et al. 2012). When instructing the patient's caregiver about symptoms, it must be emphasized that the caregiver must temper their own biases or beliefs about the patient's condition and instead seek out immediate treatment for the patient.

Given the crucial role of a close family member in the process of getting treatment, patient education must also be directed to caregivers who can recognize symptoms and realize the urgency of any situation involving recurring stroke or subsequent post-stroke conditions. Family members might mistakenly assume some stroke symptoms will pass or they are not grave enough to warrant any action towards accessing medical treatment. These miscommunications may lead to delays in necessary treatment for the patient when the caregiver misreads the patient's condition after stroke or neurological event (Klinedist, et al. 2012.)

Some misconceptions that may arise for patients after stroke were found in the literature involved the notion that hair loss is a depressive symptom or that stroke recovery will only take place for a couple months. Misunderstandings and misconceptions dealing with symptoms after a stroke are quite prevalent in the wider population.

7.2 Ethical considerations

The term ethics is defined in nursing research as a theory of discipline relating to the principles of moral values and moral conduct (LoBiondo-Wood & Haber, 2010). When conducting any type of research, ethical aspects are a primary concern. In the process of conducting this literature review, an emphasis was placed on maintaining the ethical integrity of the research process throughout the stages of data collection, analysis and reporting. The Finnish Advisory Board on Research Integrity offers ethical guidelines that address ethical questions relating to research (TENK, 2012). The research process followed the guideline of responsible conduct as described in the guideline. The guideline was read, studied and used as a reference at various stages in the writing of the thesis. In addition, reporting of main findings was done in a nonbiased and open regard with honest reporting of unexpected results. All sources of admitted information were given attention and accredited to their sources including all cases of quotations, paraphrasing and references. Accuracy and honesty in the scientific method of research was managed regularly with the aid of thesis supervisors. Database search was conducted in a systematic manner with set inclusion and exclusion criteria.

7.3 Implications for nursing practice

Patients that have severe functional impairments and communication problems need their caregivers to undergo caregiver education that brings up issues that the caregiver in that position will face (Klinedist, et al. 2012). Misunderstandings and misconceptions about stroke-like symptoms may lead to life threatening situations resulting from unsought treatment during the initial onset of symptoms. The husband of a patient reported that his wife suffered from “confusion” at times throughout the day and when her symptoms became severe he thought she was suffering from a heart attack (Kitko, 2008). Therefore, nursing staff have an immediately present concern in ensuring that in correcting these errors in patient education both the patient and the caregiver gain clarification to the early signs and symptoms of stroke as well as the risk factors that help to promote health and ease prevention.

A wider theme that seemed to emerge is the lack of information about stroke among the wider population. Despite being a main cause of death worldwide (World Health Organization, 2013), the misconceptions that arise from a misunderstanding concerning

stroke care seem to be universal. The studies showed that patients that had had a previous minor stroke were not aware of the possibility for the occurrence of severe strokes and life-threatening situations that may arise later in life. As can be seen by the figure below, a stroke survivor patient has a whole range of support that is needed to enable them to have success on the long road to full recovery (Figure 3).

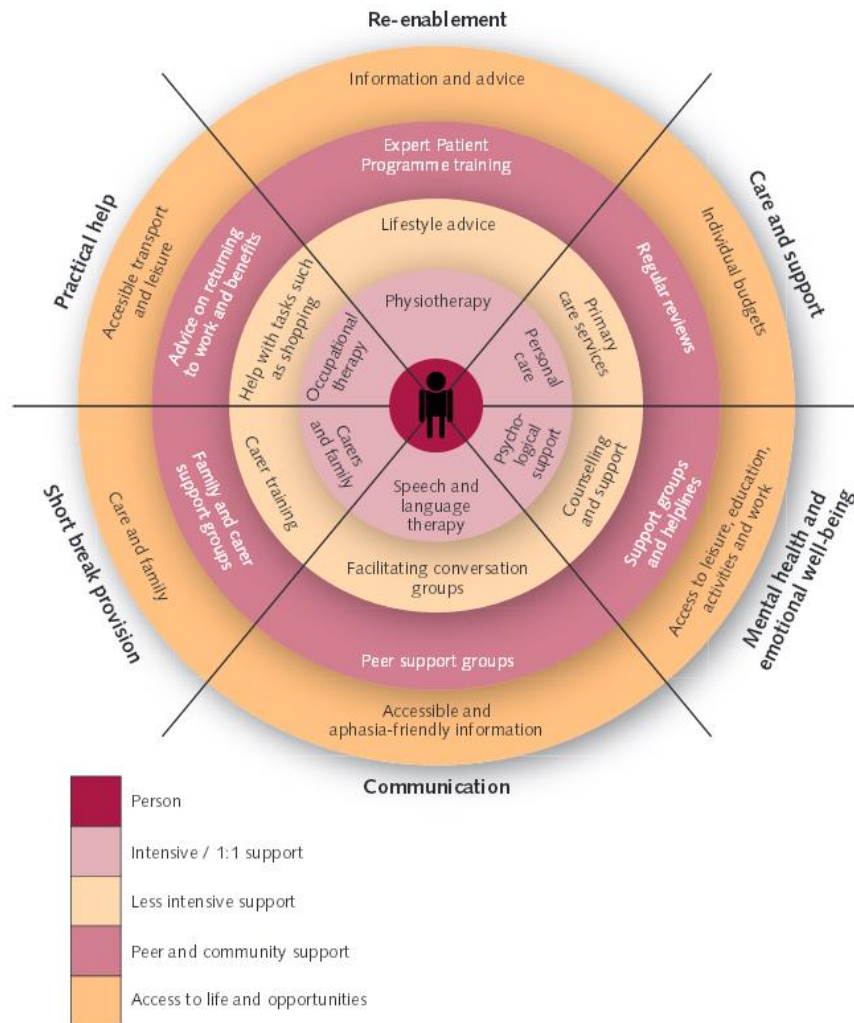


Figure 3. The range of support that a stroke survivor patient needs after stroke (DH/Vascular Programme/Stroke, 2007:49)

7.4 Implications for further research

The findings implicate a direction for further research to take place. Further studies could be carried out in the area of efficiency in patient education. Patient education implementation for stroke survivors may be better designed, perhaps to endure over a greater period of time, along with check-ups on the stroke survivor with the caregiver present. An observational study implementing a stroke patient education refresher course geared towards caregivers albeit targeted to the stroke survivor would be advantageous. The number of long-term stroke survivors is growing and the current practices are not sufficient to meet the demands of stroke survivors.

8 Conclusion

Structural changes in the content of patient education involving an emphasis on prevention could possibly serve to lower stroke recurrence. Methods of imparting patient education to stroke survivors need to involve the family and concentrate on clearing up misconceptions regarding all facets of post stroke sequelae.

Stroke survivor patients and their families have tremendous needs and concerns that the medical field is only beginning to fully understand. Despite being in the top of the lists for causes of death in a general population, stroke and its lifelong repercussions for survivors is little understood.

Despite efforts to spread awareness about stroke around the world, there appears to be a disconcertingly low level of knowledge concerning stroke. The general lack of knowledge surrounding stroke risk factors and treatment for stroke signify a dire need for attention within nursing practice and serve as a base for mapping out a strategy of higher quality in future nurse interventions regarding nurse conducted patient stroke education (Kitko, 2008). General knowledge about stroke gained throughout one's own life experiences supports care-seeking behaviours. Some stroke patients did not have any prior history of stroke, but had family members in their lives that had experienced a cerebrovascular event. Studies indicate that those patients who had had a family member who had experienced a stroke were aware of the urgency of the situation, and therefore exhibited better outcomes because they had knowledge of, for example, the importance

of the 3 hour treatment window. A sample of these patients also knew about “clot-busting drugs” and many patients sought out “help” (Kitko, 2008).

It is estimated that over 70% of strokes can be prevented – a number that serves as a sign of the public’s lack of knowledge about risk factors for stroke and the importance of controlling risk factors (Kitko, 2008). This lack of information must be addressed in the content of public education. Patient education for stroke survivors is the first step in helping to improve this situation and, in turn, provide a benefit for society as a whole.

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Author(s), year and country where the study was conducted	Purpose	Participants (sample size)	Data collection and analysis	Main results
Byers et al. 2010, USA	To review the effectiveness of an educational method of providing stroke education in an acute care setting.	20 patients were randomized into two groups: Group 1 received standard of care. Group 2 Received interventional method.	A pilot study. Therapeutic Alliance Model using motivational interviewing techniques.	<ul style="list-style-type: none"> This pilot study showed that there is a rising tendency in the healthcare field for deeper stroke knowledge. Patient awareness, satisfaction and feedback in the stroke education process are important. In the study, education on risk reduction, prevention of future strokes, healthy lifestyle practices, diet and exercise, and stress management as well as early access to the healthcare system were emphasized in the patient education. Discussion was encouraged between all parties regarding the stroke information. (Byers, et al. 2010.)
Cameron, 2013, USA	To assess the best practices for stroke patient and family education in the Acute Care setting		A literature review.	<ul style="list-style-type: none"> The review showed that in one study three areas of patient education for stroke patients were divided. These areas are disease prevention, disease-specific education and self-management. These areas should take into account the individual needs for each patient after stroke. Areas of the brain that are affected by stroke should be covered in disease-specific patient education. In this stage of education, detailed knowledge that encompass all treatment pathways, procedures, planning and desires in treatment vis-a-vis rehabilitation and the importance and purpose of medications and complying with the patients regimen. Cooperation between a patient's doctors, nurses, pharmacists, physical fitness centers, etc. must come together to ensure reliable patient and caregiver education. An informed and empowered patient has their own foundation for self-management, have greater independence, and improved quality of life and have less visits to the hospital which reduces costs across the board.

				<ul style="list-style-type: none"> • With older patients over 65, which make up over three quarters of people that have strokes, nurses need to take into account different learning styles, cognitive and memory functioning, and sensory perception. • Nurses must ensure that acute stroke patients leave the hospital well informed. Patient and family needs, learning style and ability, cognitive functioning, new deficits from the stroke, and age all need to be considered when conducting patient education. (Cameron, 2013.)
Green, 2007, USA	To examine the application of the motivational interviewing approach on stroke knowledge acquisition and changing individual lifestyle risk factors in an outpatient clinic.	200 participants were allocated to an Education-Counselling interview (ECI) or a control group.	RCT; Participants completed a stroke knowledge questionnaire at baseline, post-appointment, and three months post-appointment.	<ul style="list-style-type: none"> • Frequent stroke patient education over a period of time after discharge leads to improvement in functional outcomes, change in lifestyle and increased knowledge. (Rodgers, et al. 1999 cited in Green, T. et al. 2007, p. 18) Patients, on the whole are more receptive towards receiving information and counseling when learning about stroke risk factors if they receive their appointments 2 weeks or less after the stroke event • The main therapeutic form for the prevention of stroke is mitigation of risk factors. The importance of decreasing stroke risk factors cannot be overstated enough. (Ryan, Combs,&Pennix, 1999 cited in Green, T et al. 2007) Nursing staff play an important role in bringing about favorable conditions for adequate stroke preventive measures through patient education, counseling and treatment. Patient risk reduction planning delivered in brief, individual sessions should also be arranged. The most ideal strategic patient education approach was shown in this study. It involved timely personal risk management interventions with those patients that displayed minor strokes or transient ischemic attacks. This was supported by structured education programs and follow-up. There are possibilities to expand patient knowledge help kick start healthy life style changes despite the short times that nursing staff have with patients in the ER. (Green, et al. 2007.)

<p>Klinedist et al. 2012, USA</p>	<p>To examine caregivers' and stroke survivors' knowledge, recognition, and representation of stroke survivors' depressive symptoms during the sub-acute recover period (3-6 months post stroke).</p>	<p>A convenience sample of stroke survivor and caregiver participants was recruited from seven hospitals or physical rehabilitation sites in the Atlanta metro area. Forty-four stroke survivor –informal caregiver dyads were interviewed using a depression knowledge scale.</p>	<p>A descriptive, cross-sectional design was used using a depression knowledge scale and questionnaires to determine lay knowledge of stroke. Descriptive statistics was used for analysis.</p>	<ul style="list-style-type: none"> • post-stroke depressive symptoms relevant <ul style="list-style-type: none"> • treatment options relevant • importance of discussing symptoms with health-care provider • Areas for improvement in knowledge include clarifying that difficulty recalling things, feelings of guilt and worthlessness, difficulty concentrating, difficulty making decisions, and thinking a lot about dying are contributing symptoms of depression, but must be part of a cluster with other depressive symptoms. -> careful assessment is needed to the underlying reason for a symptom i.e. depression vs. problems in decision-making from the stroke). • Clarifying misconceptions such as hair loss as a depressive symptom • Poor individual knowledge about depressive symptoms underscores the need for education of both the stroke survivor and the caregiver about depression. • Good caregiver education for caregivers caring for stroke survivors with more functional impairment and communication problems • Among stroke survivors with high depressive symptoms, the depressive symptoms they were experience were perceived as difficult to treat. • In neurodiseases, brain injury may preclude the stroke survivor's ability to accurately analyse his or her mood or abilities. HCP often use family proxies during assessment of a stroke survivor. • Content should include (a) the signs and symptoms of post stroke depression; (b) the fact that the whole cluster of symptoms must be examined as a whole and that one or two depressive symptoms may have other stroke-related causes; (c) the cause, consequences, time line of the symptoms; and (d) options, availability, and benefits of treatment for post stroke depression. <ul style="list-style-type: none"> • nurses should read thru written materials aloud • Nurses should explain that post stroke depression symptoms may arise after patient leaves rehab setting • Nurses can encourage stroke survivors to report any symptoms of potential depression to HCP (Klinedist, et al. 2012)
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<p>West et al. 2012, USA</p>	<p>To explore factors associated with recall of medication education and satisfaction with healthcare provider communication in patients with stroke or TIA</p>	<p>2,219 patients from 99 sites were available for the analysis.</p>	<p>This is an analysis of data from the AVAIL (Adherence Evaluation of Acute Ischemic Stroke Longitudinal) study. At 3 months post-discharge, interviews were conducted</p>	<ul style="list-style-type: none"> • Although medication education for patients who have experienced a stroke routinely occurs, results from AVAIL show that this education is not universally received or retained. • older pts less likely to receive medication info at discharge, less likely to understand how or why to take medications, less likely to report understanding the side-effects of prescribed medications at 3 months • racial disparities exist in the administration of written medication lists or education about possible side effects • content: written patient medication list with instructions and effective communication for knowledge retention important → structured education about medication gives better outcomes-increasing the pts understanding of how and why to take medication. <ul style="list-style-type: none"> • checks medication and HC communication • Educating patient with significant others present, different perception about PE. • Those living alone were not communicated to in own language. (West, et al. 2012.)

<p>Yonaty & Kitchie, 2012, USA</p>	<p>To (a) review perceptions of stroke patients about their own stroke and to assess the level of satisfaction patients feel with patient education. (b) To determine the perceived level of satisfaction among newly diagnosed stroke subjects with the stroke education provided</p>	<p>The study included a convenience sample of 71 newly diagnosed, first-time stroke subjects from two metropolitan hospitals in the Northeast. The hospitals are designated stroke centres approved by the American Heart Association.</p>	<p>A questionnaire with eight domains translated from Korean into English.</p>	<ul style="list-style-type: none"> • Patient-perceived areas of high importance to learn: medical knowledge, treatment of stroke with medication • Patient-perceived areas of overall importance: control of risk factors, treatment of stroke with surgery, rehabilitation, other topic area (e.g. what other people will think) • Patient-perceived area of least importance: treatment of stroke with herbal or alternative medication and dietary habits after stroke • The findings suggest there is a group of patients who become more anxious about other people's reactions and ideas about them with their stroke handicaps. • Patients expressed overall dissatisfaction with patient education in all domains investigated, indicating that the domains were not taught or were taught at sub-standard levels (Yonaty & Kitchie, 2012)
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