

# Nursing interventions needed for improving quality of life of stroke patients

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## **NURSING INTERVENTIONS NEEDED FOR IMPROVING QUALITY OF LIFE OF STROKE PATIENTS**

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Degree Programme in Nursing,  
Bachelor's Thesis  
December, 2017

**Laurea University of Applied Sciences    Abstract**  
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Year	2017	Pages	50
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Stroke is one of the leading causes of death globally and it is also among the leading causes of permanent disabilities and painful long processes of recovery for survivors. As practitioners working closely with patients, nurses play a very important role in stroke management. The purpose of this thesis was to describe nursing interventions needed in improving quality of life of stroke patients using literature review. The research question was: What kinds of nursing interventions are needed to improve quality of life in stroke patients?

A literature review method was used in this thesis. The process involved conducting a literature search, selecting data relevant to the research question and then analyzing that data according to thematic content in order to help in answering the research question.

The data was collected from Laurea academic electronic databases namely; Proquest central, Cinahl(EBSCO), Sage and Science direct using key search words related to the purpose statement and the research question. Inclusion and exclusion criteria was used to evaluate the relevance of the articles that had been identified as literature materials. Critical Appraisal tool(CASP) was used to assess the quality of the articles identified for review. A total of 8 articles were selected as data materials for the thesis, and critically analysed through inductive content analysis process. This process produced four main categories that were used as findings.

The findings described four main themes of nursing interventions needed to improve quality of life of stroke patients namely : Assessment for risk factors of stroke, determination of early signs and complications, patient centred care and patient's' plan of care. The findings provide insights on improving the quality of life of stroke patients.

Due diligence was paid on ethical considerations to ensure credibility of writing the thesis as well as acknowledging its limitations. The findings of this thesis can be used by nurses while considering interventions for caring of patients with stroke. It was recommended that further research on nursing interventions for stroke patients be carried out using a different research design. This would help to verify the results of these findings in a different setting and eventually be useful in nursing care and improvement on how to care for stroke patients.

**Keywords:** Stroke, Stroke patients, Improving quality of life, Nursing interventions

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## 1 Introduction

Stroke is one of the leading causes of deaths globally contributing to an estimated 5 - 7 million deaths annually. It is also among the leading causes of permanent disabilities and leads to a painfully long process of recovery for survivors, but the effects may be managed through the help of health care professionals who give support in the rehabilitation process (Ng, Ton, Yuko 2015).

The burden of stroke causes significant emotional, social and financial constraints to individuals and their families as well as on public healthcare expenditures. Ng, et al. (2015) observes that stroke consumes between 2 - 4% of the total global healthcare expenditure and over 4% of direct healthcare costs in developing countries.

Whereas stroke is a cross cutting condition among all age categories, the global population upsurge, especially among the elderly, is of a mounting public health concern in relation to increased disease burden of stroke. According to Simeone, Savini, Cohen, Alvaro, Vellone (2014) regarding age "the prevalence and incidence of stroke increases exponentially with age, peaking in people older than 85 years with 75% of stroke occurring in people over 65 years old". It is imperative, therefore, that the quality of nursing interventions in stroke management be significantly enhanced if the quality of life of stroke survivors is to be guaranteed.

Nurses, as trained professionals, play a noteworthy role in stroke management. As practitioners working very closely with patients, nurses are uniquely placed to better recognize early signs and symptoms of stroke. This thesis seeks to describe nursing interventions needed to improve the quality of life in stroke patients.

## 2 Theoretical framework

### 2.1 Stroke

Stroke is a condition that can generally be understood as a form of "brain attack" in which continuous supply of blood to an area of the brain is interrupted. As a result, brain cells are deprived of oxygen and begin to die, affecting the functions controlled by that part of the brain such as memory and muscle control that could be severely impaired. The effect of stroke to a person may be of varying degrees depending on the area of the brain where the stroke has occurred and the magnitude of the brain damage caused. For example, someone who has merely suffered a minor stroke may only experience temporary weakness of the arm or leg, whereas, people who have suffered a major stroke may be permanently paralyzed on one side of their body or lose their ability to speak. While it is possible to completely recover from

stroke, it has been observed that more than two third of stroke survivors end up with a certain form of disability (Lawrence 2010; WHO 2014).

Generally, stroke can be classified into two types as illustrated in figure 1. Ischemic stroke occurs when a vessel carrying blood to the brain is blocked due to a blood clot (thrombosis or embolism). When blood flow to the brain is stopped temporarily, patients may begin to experience stroke like symptoms which are medically referred to as Transient Ischemic Attack (TIA). Depending on the severity of the ischemia, infarction cellular death is likely to occur within minutes, causing irreversible damage even after blood flow is restored. This is called the “core” of the infarct. Surrounding the core is tissue that is affected functionally due to diminished circulation but may recover if blood flow is restored. This is called “ischaemic penumbra”. It is estimated that 50 -70% of survivors of ischaemic stroke may recover functional independence 3 months after onset, yet 20% may require institutional care (Mozaffarian, Benjamin, Go, Arnett, Blaha, Cushman, Turner 2015 ; National stroke association 2013).

Ischaemic stroke can be further sub categorized as atherosclerotic ischaemic stroke and embolic ischaemic stroke. Atherosclerotic ischaemic stroke is common among elderly persons, in which 80% of cases occur without warning. Embolic ischemic stroke on the other hand is more frequent in patients with atrial fibrillation, myocardial infarction, prosthetic valves, rheumatic heart diseases and large artery atheroma (Mozaffarian et al.2013; National stroke association 2013).

Hemorrhagic stroke occurs when aneurysm burst or a weakened blood vessel leak (hemorrhagic) occurs in the brain. Haemorrhagic stroke may be of two types, one resulting from intracerebral haemorrhage secondary to hypertension, cerebral amyloid angiopathy, or degenerative artery disease. The other type may be secondary to subarachnoid haemorrhages caused by rupture of an aneurysm. Most intracerebral haemorrhagic stroke may develop within 30-90 minutes with varied symptoms depending on the extent and location of the hemorrhage. These symptoms may include vomiting, drowsiness, and headache. Large hemorrhages may cause stupor or coma. Other occasional symptoms may include paralysis of limb, difficulty in speaking, visual impairment or sudden unexplained headaches (National stroke association 2013).

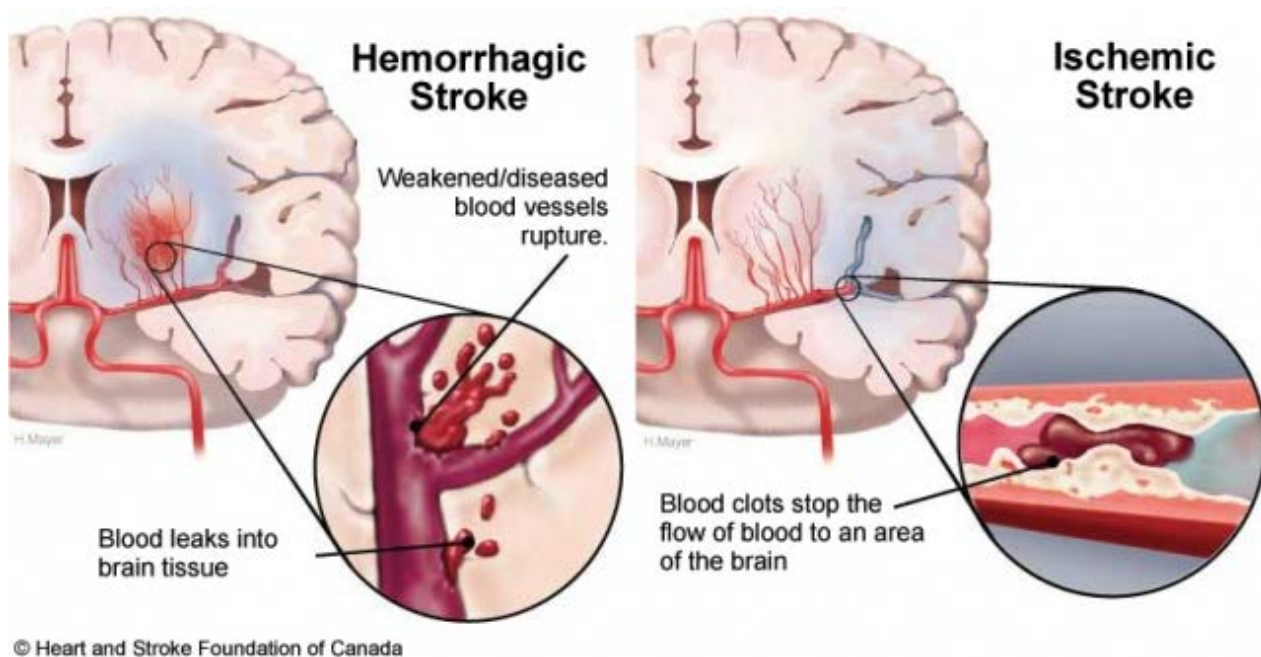


Figure 1: The two types of stroke(University of Arizona 2014)

The effects of a stroke depends on which part of the brain is injured and how severely it is affected.

Stroke survivors are often confronted with adaption challenges long after discharge from the hospital or rehabilitation wards. Suddenly, individuals become aware of the significant impact of stroke in their lives, both physical and psychological. Simeone et al.(2015) observes that the experience of returning home for many stroke survivors is often challenging. Many stroke survivors are still faced with life insecurity. They are vividly able to remember the sensation felt during the stroke occurrence, even as they experience the slowing down of their lives. Their body movement, cognitive and decision making processes become limited and the experience of guilt for the discomfort they may have caused their families and relatives remain glaring.

Depending on the site and size of the lesion, stroke may cause hemiplegia, weakness, perceptual dysfunction, disturbance of vision and/or speech, and loss of control of the bowel and bladder. It may also result in personality and intellectual challenges, ranging from difficulty in controlling emotions and lack of self confidence. The severity of the disabilities, stress, depression, cognitive impairment and reduced quality of life as an aftermath of stroke remains a glaring day to day challenge in the life of many stroke survivors.

## 2.2 Stroke patients

Stroke patients are people who have been affected by stroke and are in need of acute care to help alleviate the symptoms and relieve them of any pains. The description of each stroke is different depending on the part of the brain injured, how bad the injury is, and the person's general health. Patients should get the best treatment possible immediately the first signs have appeared to prevent complete loss of body functioning abilities or death since persons affected may easily lose their independence and in turn affects their quality of life (Hughes 2011).

## 2.3 Improving quality of life of stroke patients

Improving quality of life involves evaluating areas needed when making decisions on treatments aimed at enhancing the wellbeing of the stroke patients. There are different factors that can be used to classify strategies used to assist patients to cope with the stroke related disabilities. At the micro (individual) level, for instance, it is important to consider the medical condition of the patient and the current health status in addition to health and safety risks, functional status such as physical, cognitive, emotional, and social status. In addition, health perceptions, personal health resources, opportunities, spirituality and unmet individual needs are important considerations to make when making plans on how to care for a patient who has a stroke (Theofanidis & Gibbon 2016).

At the meso level, it is important to take into account the social support and family functioning of the individual and how well these can work together to help the patient. All these should aim at increasing the productivity of the patient by investing in them especially as they go through rehabilitation of the body functions. When the life of a stroke patient is improved they are able to cope well with the effects of the stroke, they are also able to carry on with their activities of daily living without being too dependent on their care givers. Therefore, any kind of aid planned for stroke patients should aim at improving their quality of life (Theofanidis & Gibbon 2016).

## 2.4 Nursing interventions in stroke patients

Nursing interventions are activities provided by nurses to promote the quality of life of patients. This enables the patients to improve and manage their present health status to prevent complications arising from suffering stroke. Nurses follow the nursing process which involves planning and setting goals for the patients to aid in the recovery process. According to Theofanidis and Gibbon (2016), it is imperative that nurses pay close attention during acute stages of stroke, more focus should be placed on preventing secondary brain injury, maintaining airways, providing general body support such as monitoring of vital signs, maintaining fluid and electrolytes' balance and predicting the possible occurrence of complications.



Theofanidis and Gibbon (2016) recommend that upon admission, a general assessment of the patient's condition should be immediately conducted to determine their baseline neurological status, appropriate positioning as well as their level of consciousness. Close monitoring of patients and prompt action is of great essence. It reiterates that close monitoring of patients facilitates "early detection of hypoxia, hypoglycemia, hypotension, cardiac arrhythmias, and elevated body temperature, especially during the first 48 (up to 72) hours post stroke onset". This can help to determine what appropriate actions need to be taken, including possibilities for referrals.

### **3 Purpose statement and research question**

The purpose of this thesis is to describe nursing interventions needed to improve the quality of life in stroke patients.

The research question of this thesis is: What kinds of nursing interventions are needed to improve quality of life in stroke patients.

## 4 Literature review

The literature review method adopted by the authors of this thesis followed the phases of a systematic literature review. According to Knopf (2015), systematic literature review is a process of summarizing and evaluating a structure of writings that reference a specific topic. A literature review can also combine results from different studies in order to answer a research question or find a solution by interpreting the studies. It is therefore important to evaluate many different studies in order to draw a firm conclusion from them, it's too risky for researchers to draw a conclusion from one study. The literature review process was carefully documented by the authors so as to verify that the method used is reliable, the literature review is a research methodology on its own merit (Baumeister 2013; Knopf 2015).

According to Grant and Booth (2016), literature review is also described as a methodology used for integrating or comparing the results or findings from various qualitative studies. Based on this understanding the authors of this thesis described steps which would help them to clearly identify the knowledge that was already in different studies, the information had to be relevant concepts and contexts that would be used to answer the research question.

The steps taken in conducting the review of this thesis included; Firstly, identifying the research question, limitation of search was done in order to fit into a relevant criteria to avoid gathering irrelevant information. Secondly, searching for information from academic databases by identifying the relevant literature and publications. Thirdly, carrying out a data appraisal by using Critical Appraisal skills programme (CASP) tool to determine the quality of study evidence from the articles by considering these elements: study design, study quality, consistency, and directness. Fourthly, extraction of data from the selected articles by reading through the raw data to come up with sub categories then main categories which formed the findings. The findings were then interpreted and discussed by both authors. The main advantage for using this methodology was that it efficiently integrates valid information and often provides a basis for rational decision making (CASP 2017).

### 4.1 Data search

A computer based data retrieval was performed to search for relevant data in an orderly procedure, by gathering information from articles that had already been previously published from Laurea Finna portal. This is a search interface that contains Laurea' printed materials and all the electronic collections that are paramount for students as they carry out any researches on any given piece of work. The authors were interested in the electronic collections which contain professional literature based on their nursing field of study. The authors chose Laurea Finna portal since they had previously used the same interface during their studies to

search for information on various topics and that it had rich varied articles that were reliable as scientific sources. An electronic literature search was conducted in four main databases namely, Proquest central, EBSCO(CINAHL), SAGE and Science direct, these were found to have relevant data that would answer the research question (Aveyard 2010; Laurea LibGuides 2017).

The first database was Proquest central which is a full text database that is available online in the Laurea's Finna portal and it is available for students who may need to find information for their research works. It is a big comprehensive multidisciplinary database with over 8000 titles in full text and has a variety of subject areas. The authors were only interested in the health and medical professional literature. In the primary search the articles that were found using key words 'stroke', 'improve quality of life', 'nursing interventions' resulted to 7278 hits. Several of them were duplicated sources and discussed stroke as a disease rather than nursing interventions which was contrary to the author's purpose statement. A second screening was done using these limitations: Key search words used were 'quality of life' and 'patients with stroke' and 'Nursing interventions', full text, peer reviewed, dated between 2010-2016 the document type had to be literature review type of article, a scholarly journal and had to be in English language, these limitations narrowed down the results to 13 hits (Laurea Libguides 2017).

The second database that was used in the primary search was CINAHL (EBSCO). The Cumulative Index to Nursing and Allied Health Literature. This is a database that can be accessed through the Laurea Finna portal and is available to students, who are interested in carrying out their research in any given piece of work. It has immense information specifically for health and medical professional researchers including nurses and nursing students. It has a variety of nursing journals, publications and the literature has vast knowledge for health care. Cinahl has been provided online by EBSCO publishers thus carries the name CINAHL (Ebsco). In the primary search the articles that were found using search words 'stroke, improve quality of life, nursing interventions' resulted to 5 hits. 3 discussed stroke as a disease rather than nursing interventions which was contrary to the author's purpose statement. A second screening was done using these limitations: Keywords 'quality of life and patients with stroke and nursing intervention, full text :peer reviewed, dated between 2010-2016 the document type had to be literature review type of article, a scholarly journal and had to be in English language (Laurea Libguides 2017).

The third database used was SAGE. SAGE: is a database with expansive range of E-Reference content publishing over 600 journals and articles annually in social sciences field that contain over 4,600 titles. Its contents contains reference works, academic books, professional development titles and more. From Sage Journal we obtained 777 hits on the initial search. The limitations at this stage were: the use of the keywords; 'Stroke patients' and 'quality of life', and 'nursing interventions'. The publications were limited to years 2010-2016 and further

limited by 'content with full access' and 'Nursing subject' which narrowed the search to 2 hits. After reading through the 2 articles obtained in the search, the authors found them to be relevant to the purpose statement and they were included in the final review (Laurea Libguides 2017).

The fourth database used was ScienceDirect which is a database in Laurea Finna with currently over 250,000 articles which are open access. The open access journals are peer-reviewed and free to use to increase accessibility. From Sciencedirect we obtained 7599 articles on our initial search that used the keywords; 'Nursing interventions' and 'stroke patients'. This search was further refined to journals and open access articles and still refined to Nursing and health professions and publication date of 2010-2016 which yielded to 0 results (Laurea Libguides 2017).

The primary search illustrated in table 1, collected a total of 15659 articles from all the databases, using the keywords "Stroke, Quality of life, nursing interventions, stroke patients". The keywords were then modified to 'stroke, stroke patients, nursing intervention, quality of life without using ' AND' this significantly reduced the results to 16 articles. A further modification was done on the search words to 'stroke, stroke patients, improve quality of life, nursing interventions and the relevance of the titles also was put into consideration. The articles had to fall into 2010-2016 time period and this finally yielded to 8 articles that were accepted for review.

Table 1: Illustration of the data search process

Database	Search words	Limitations	initials hits	Articles by abstracts, titles	Relevant articles to be reviewed
ProQuest Central	Stroke+ Nursing interventions+ quality of life+ stroke patients.	Full text, English, 2010 - 2016	7278	13	6
CINAHL	Stroke, Nursing interventions, quality of life, stroke patients.	Full text, English, 2010 - 2016	5	1	1
SAGE	Stroke, Nursing interventions, quality of life, stroke patients.	Full text, English, 2010 - 2016	777	2	1
Science direct	Stroke, Nursing interventions, quality of life, stroke patients.	Full text, English, 2010 - 2016	7599	0	0
<b>Total</b>			<b>15659</b>	<b>16</b>	<b>8</b>

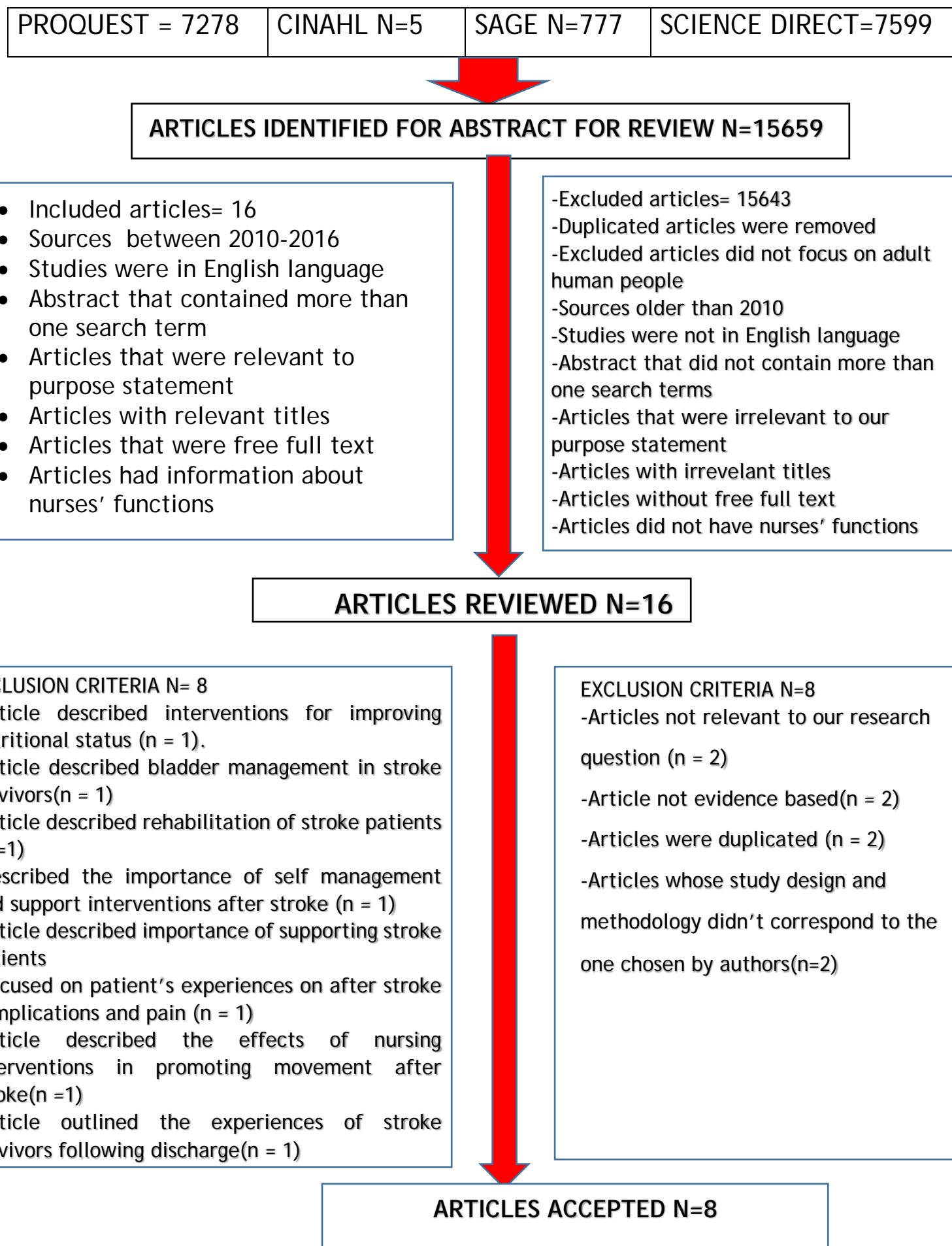
## 4.2 Inclusion and exclusion criteria

The data was selected based on the research question: 'What kind of nursing interventions are needed in improving quality of life in stroke patients?' and the purpose of the thesis: To describe nursing interventions needed to improve quality of life of stroke patients. The inclusion and exclusion criteria was used to ensure that articles that were included would help in answering the research question (Wright, Brand, Dunn, Spindler 2007).

The criteria is normally used in order to account for reliability of work done and clearly outline how information has been identified for data analysis to avoid bias or any conflict that may arise. According to Salkind (2010), the inclusion criteria is a set of predefined attributes that are used to identify subjects which will be included in a research whereas exclusion criteria is a set of predefined attributes which will not be included or are totally dropped off in a research piece of work.

The inclusion criteria required that; articles are relevant to purpose statement, the articles were written in free full text, dated 2010-2016 and articles that were in English language. Articles reviewed were 16. The exclusion criteria included duplicated sources, articles not in English language, articles older than 2010, articles that had irrelevant titles, articles on sale that is without free full text and articles that did not include the nurse function. Excluded articles totalled 15651. After filtering these articles by the inclusion and exclusion criteria, finally, 8 articles were accepted for further review as illustrated in figure 2.

Figure 2: Illustration of data selection flow



### 4.3 Data appraisal

According to Mhaskar and Emmanuel (2009), critical appraisal is a technique used to examine research evidence in order to determine its value, worth, trustworthiness and relevance in a given phenomenon. Critical appraisal examines the process followed in order to evaluate whether the chosen articles are free of bias, and it helps to determine the strength or weakness of the study (Rahul et al. 2009). This process also helps to determine if the evidence in the study is accurate and if it is reliable enough to be used in any research piece of work. The strengths, limitations, relevance of the data or literature is normally evaluated using already established guidelines and criteria.

Critical Appraisal Skills Programme (CASP) 2017 has 3 ways of evaluating a research paper. Firstly it seeks to find out the validity of the study by evaluating the methodology used and its quality. Different questions have been designed for this criteria and the validity is evaluated on certain scales of evidence. Secondly, it seeks to know and understand the results and if they are proven important for use locally or internationally. Thirdly, it seeks to know if the results are relevant and if they are to be used in the application to the research question that writers have structured. This tool therefore provides a good basis for which researchers can use to evaluate the evidence of studies.

The authors adopted Critical Appraisal Skills Programme (CASP) 2017 as their tool of appraisal since it was the most appropriate in verification of the literature review studies and also easy to use. This is an online assessment tool which contains 10 questions and the answers are recorded as 'yes', 'no', or 'can't tell'. It does not contain a scoring system and the evaluation is done in terms of 'Good', 'Fair', 'Poor'. The authors read the preset questions of assessing the articles together online, they answered each question and did evaluate each article following the instructions that had been set in the appraisal tool. The answers were rated good, fair or poor. 6 articles were rated good while 2 were rated fair as illustrated in the Table 2.



Table 2: Illustration of data appraisal process

ARTICLE	TYPE OF STUDY	GUIDELINE USED	QUALITY RATING	COMMENT
End-of-life issues in acute stroke care	Cross sectional-interviews	CASP	GOOD	
Patient experiences of bladder problems following stroke	Cross sectional-Questionnaire	CASP	fair	No mention of the method used to select the participants
Self-Management Support Interventions for Stroke Survivors	Systematic Meta review	CASP	Good	Quality was assessed using the R-AMSTAR tool
Stroke rehabilitation and discharge planning	Qualitative-Notes, observations	CASP	fair	
Urinary dysfunction Assessment and management of stroke patients	Qualitative	CASP	Good	based on double-blind peer reviewed articles
Effects of an enjoyable nurse led intervention to promote movement in post stroke inpatients	Qualitative-descriptive statistics	CASP	Good	
The experience of stroke survivors three months after being discharged home	Qualitative-descriptive and interpretive phemonology	CASP	Good	
Nutritional Status and Outcomes of Stroke Patients: Descriptive Reviews of Processes and Outcomes	descriptive study(randomized controlledtrial (RCT), controlled clinical trial (CCT), or quasi-experimental designs.	CASP	Good	

#### 4.4 Data analysis

Data analysis aims at organizing , structuring and bringing into a comprehensive meaning data that has been collected. In this process raw data is carefully organized according to categories that eventually brings out a structured meaning that becomes information which is then reported as findings. The authors used inductive content analysis in this thesis. “Inductive analysis refers to a systematic procedure for analyzing qualitative data in which the analysis is guided by evaluating the objectives. It uses the detailed reading of raw materials to derive concept themes through interpretation from raw data by researchers” (Thomas & David 2006). The inductive approach includes open coding, creating categories and abstraction phase. Inductive content analysis is used where there is scarcity of knowledge on a given topic or when the knowledge is fragmented.

The authors of this thesis adopted the inductive content analysis which aims at reducing bulk information or several materials into more manageable data from which the researcher can identify a specific pattern in order to gain more knowledge from it. It enables researchers to identify main themes from general and fragmented knowledge by reducing the materials to a set of categories. In this type of analysis the authors initially organize raw data from reviewed materials by making notes and small headings. The data is then grouped by combining similar headings into sub categories and then through grouping of similar subcategories to form main categories .This is a tedious process that involves a lot reading and re-reading in order to group similar data together to form more specific themes (Polit & Beck 2012).

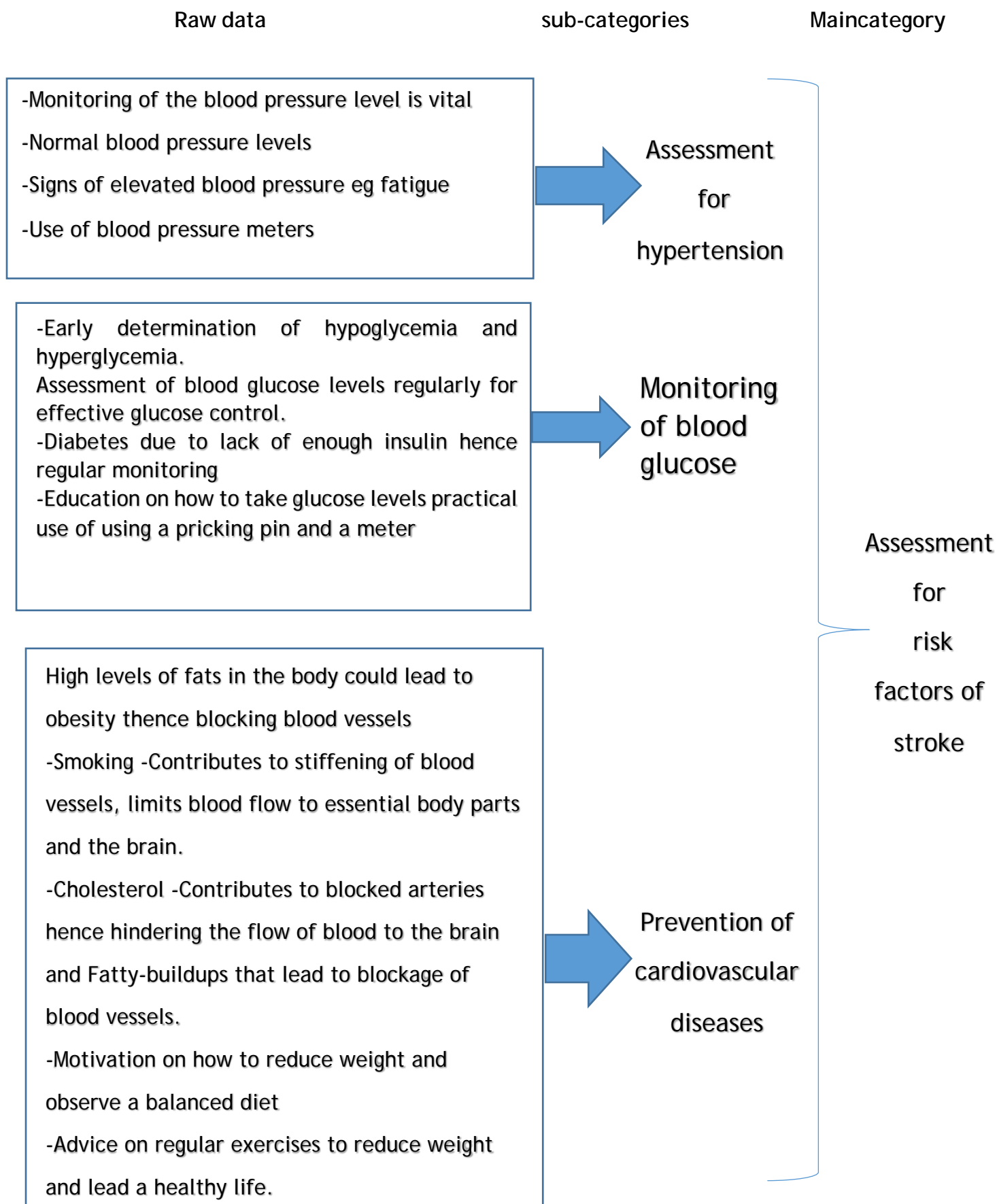
The authors took notes from raw data and grouped similar headings into categories. The first group that was formed had ideas that brought a better understanding of stroke as a disease and had many ideas for risk factors for stroke. Through deliberate discussions between the authors, they came up with three subcategories namely assessment of hypertension, monitoring of blood glucose levels, prevention of cardiovascular diseases. They then read through these subcategories keenly to bring out similarities and relationships between them to form a main category named assessment for risk factors of stroke which was also outlining ideas that lead to answering the research question.

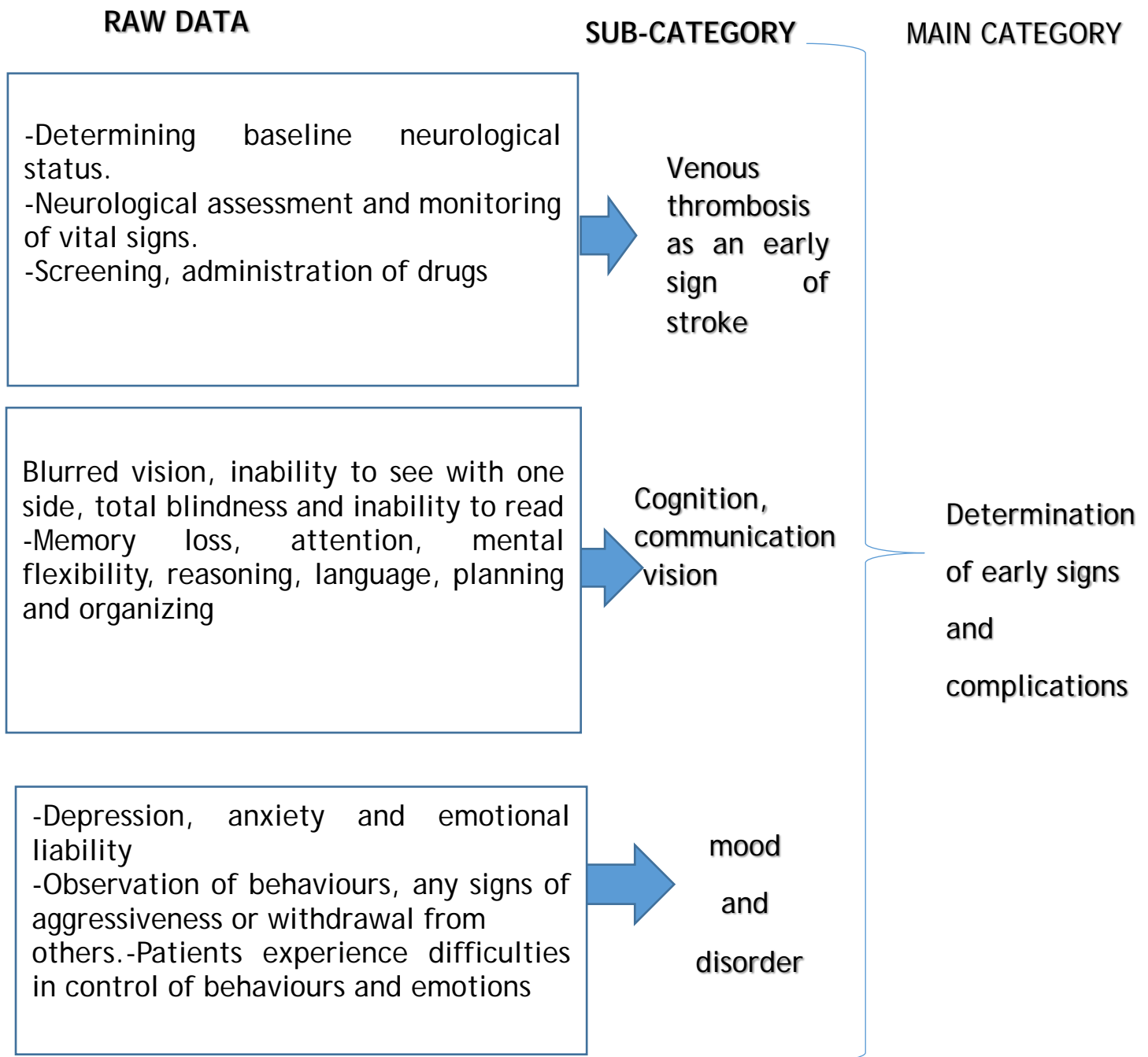
In the second grouping ideas that had similar traits were grouped together to form these subcategories: Mood and disorder, cognition communication and vision, venous thrombosis as an early sign of stroke. These were read through and since they had related links the authors created a main category named determination of early signs and complications which was trying to answer the research question. In the third grouping subcategories that were formed from the raw data were nutritional care, bladder management, care of pressure areas and pain management. Rereading and critically evaluating their relations led to a formation of a main category: Patient centered care. In the fourth grouping and in accordance to the relevance to

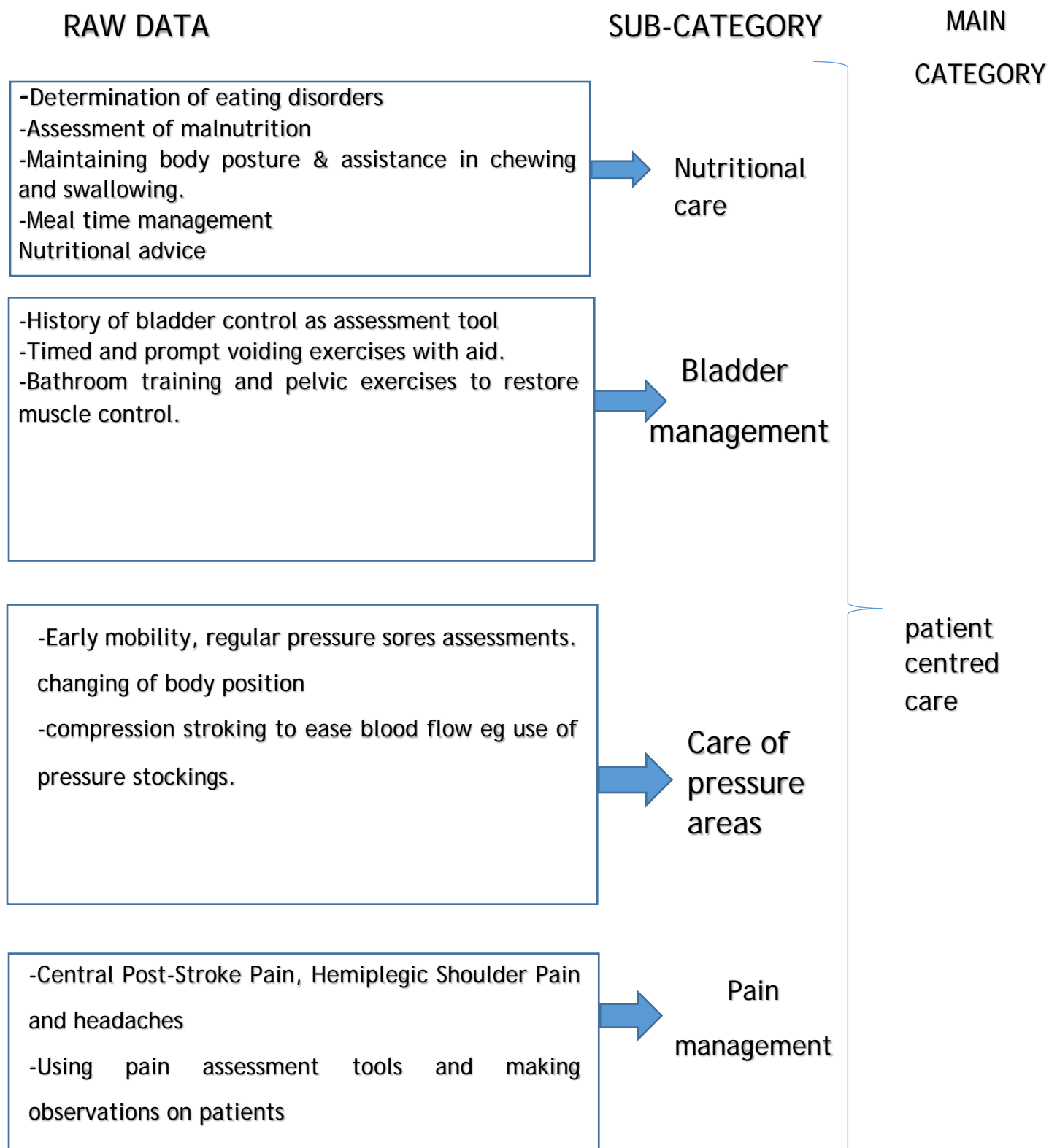
the research question, from the raw data, note taking and deliberations between the authors led to a formation of subcategories named: general care plan, patients care plan and nurses professional competence. The authors arguably decided to evaluate them by noting carefully the similar traits which helped to form the main category: Patients care plan.

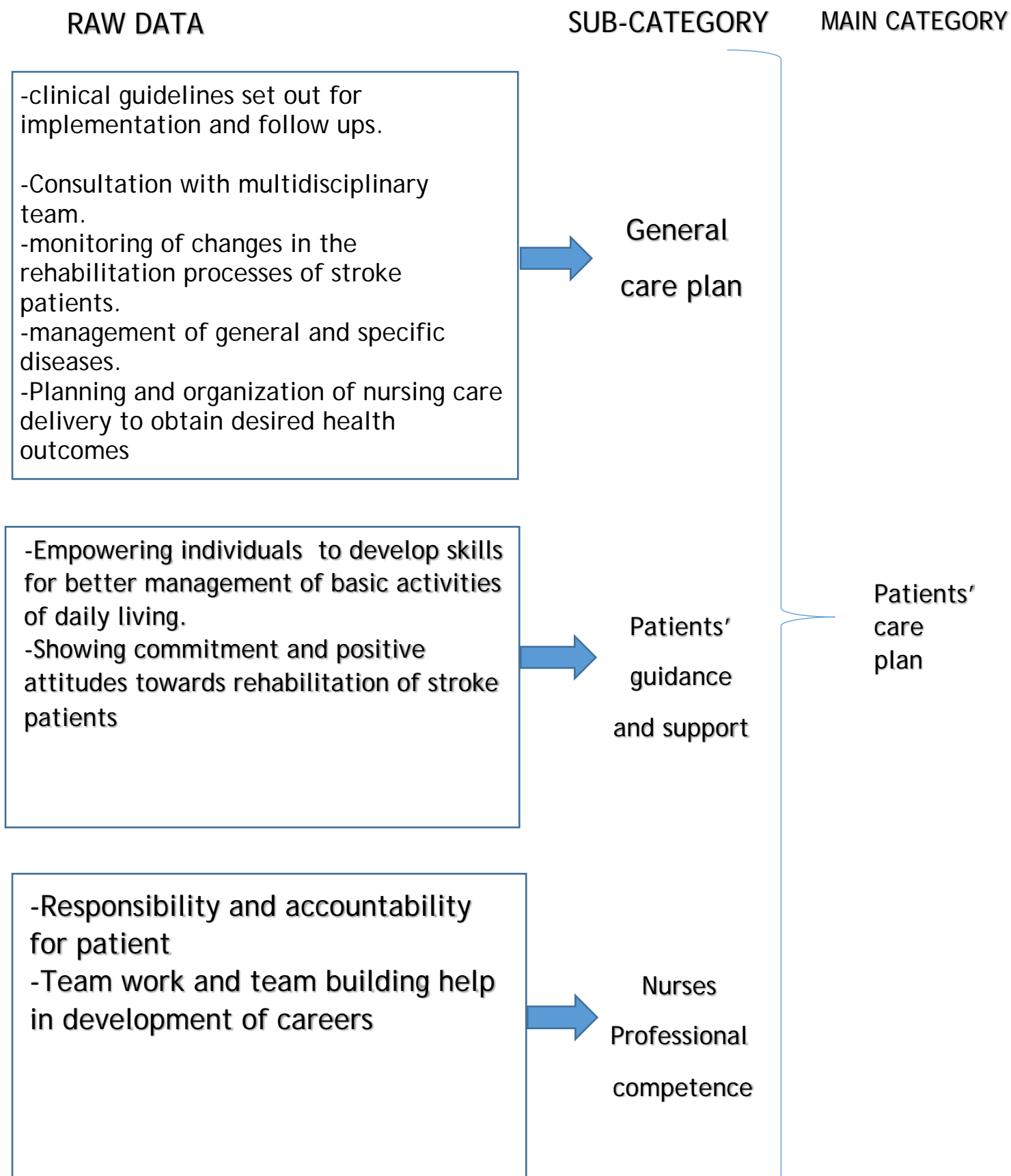
The creation of main categories then became the results that answered the research question: Nursing interventions needed in improving quality of life of stroke patients. All the results were then elaborated and well explained in the findings following the purpose statement that the authors wanted to describe nursing interventions needed to improve the quality of life in stroke patient. The figure 3 illustrates how the inductive content analysis was carried out.

Figure 3. Illustration of data analysis process





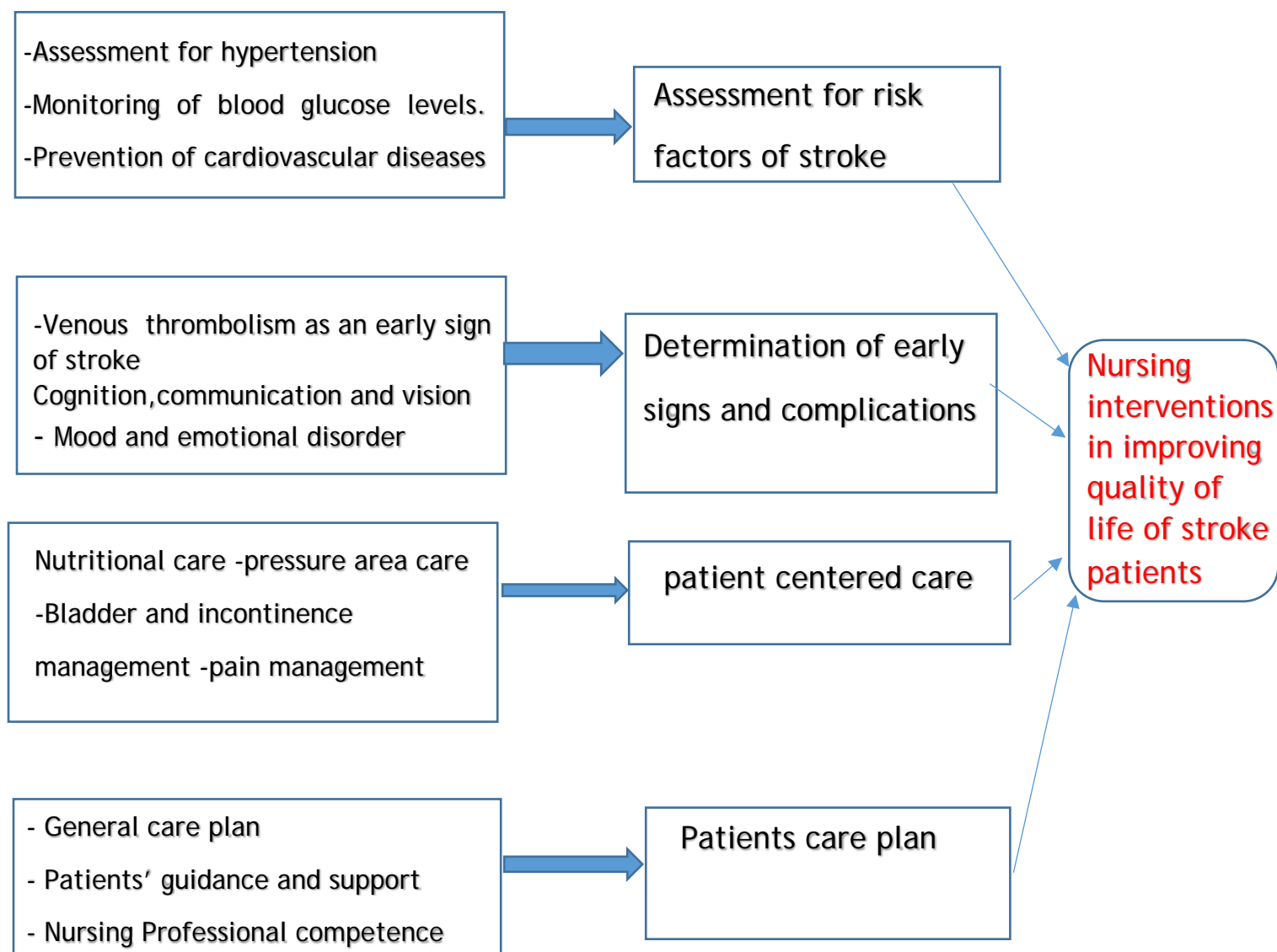




## 5 Findings

Figure 4 presents the findings in this thesis that were reviewed and organized as guided by the thesis question. Eight research articles were reviewed from evidence based literature reviews closely relating it to the purpose of the thesis. The purpose of the study was to describe nursing interventions needed in improving the quality of life in stroke patients using literature review. The research question: What kind of nursing interventions are needed to improve quality of life in stroke patients? The findings were grouped into four categories: Assessment for risk factors of stroke, determining early signs and complications, patient centered care and Patients care plan.

Figure 4 Summary of findings





## 5.1 Assessment of risk factors for stroke

The thorough analysis of the evidence from the selected articles suggested that:-

Stroke is associated with many risk factors that can have devastating impacts on stroke patients. Any appropriate nursing intervention for improved quality of care of stroke patients begins with the understanding of the risk factors for stroke and their possible modification and treatment. While detailed analysis and presentation on modification and treatment of risk factors is beyond the scope of this study, it is necessary that possible preventive or management interventions by nurses be appropriately discussed.

### 5.1.1 Assessment for risk of hypertension

Hypertension is described as a condition in which blood vessels have persistently elevated pressure also known as high blood pressure. The pressure is normally created by the force of the blood pushing against the arteries and it results to an occurrence where the higher the pressure the harder the heart is required to pump the blood (Parke, Epiphaniou, Pearce, Taylor, Sheikh, Griffiths, Greenhalgh, Pinnock 2015).

Ideally, blood pressure, both systolic and diastolic, should be below 120 mm/Hg systolic or 80 mm/Hg diastolic in a relatively healthy person. For most stroke patients it was estimated that 51 % of their deaths resulted from high systolic blood pressure globally. It is notable that severe arterial hypertension can easily worsen cerebral edema, this could have devastating effects, particularly leading to hemorrhagic transformation of the infarcted stroke area. It is therefore highly recommended that hypertension be closely monitored at all times. By closely monitoring the blood pressure of patients and recommending possible lifestyle changes it was observed that nurses would help stroke patients to minimize the aggravated risk for stroke and its negative outcomes. Nurses would intervene by helping patients to introduce changes in diet, less salt intake, weight loss and exercises programs as well as self control in alcohol consumption (Parke et al. 2015).

Smoking damages blood vessels by blocking them which could lead to a stroke attack. Secondly, nurses would provide appropriate information on the effect of smoking on the patient's health status. Nurses would support the patients by counselling and nicotine replacement processes which may increase the likelihood of smoking cessation and limit the development of high systolic levels in the blood. Nurses can also help patients to learn how to measure blood pressure on their own hence in the future can do it independently. This can encourage patients to lead healthier lives since they can also interpret results on their own (Parke et al. 2015).

### 5.1.2 Monitoring blood glucose levels

Blood glucose level is the amount of sugar that are present in the blood and are measured in mmol/l and they vary from one person to another. Different and varied factors may affect the level of glucose on the blood however the normal level in human beings is 5.5mmol/l depending though it may fluctuate if the person is hungry. The body of a normal person has its own mechanism of regulating blood glucose which is known as homeostasis and it ensures that sugar levels are always on a normal level. This however be different if a patient has diabetes and can eventually lead to stroke if not taken care of medically or early interventions are not carried out. Regular monitoring of blood glucose levels is very important and should be done on a daily basis depending on health status of a patient (Parke et al 2015;WHO 2014).

Glucose normally enters the blood stream to the cells after food has been digested either in the mouth or in the stomach. The hormone insulin facilitates the body to use the glucose in order to provide energy and lack of it leads to too much glucose in the blood and in turn the cells do not receive energy to carry out other processes in the body. An increased amount of glucose levels leads to increased fatty deposits or clots in the blood vessel walls and can easily lead to narrowing or complete blockage of the blood vessels in the brain hindering efficient oxygen to the brain and hence leading to a stroke. Elevated blood glucose levels increases the risk of stroke and therefore nurses should provide patient education in order that patients can also independently monitor the levels or try and reduce sugar intake. For inpatient patients, nurses can take the responsibility of monitoring and restricting certain food intakes by drawing up dietary intake programs (Parke 2015; WHO 2014).

### 5.1.3 Prevention of cardiovascular diseases

According to WHO (2014), cardiovascular diseases take the lives of 17.7 million people every year, 31% of all global deaths and also triggers ailments which manifest initially as heart attacks or strokes. These are disorders of the heart and vessels of the blood for example coronary heart diseases, cerebrovascular diseases and other conditions of the heart. Normally patients may have raised blood pressure, high glucose levels and early identification of such signs may help to curb the risk of a stroke attack. Nurses should ensure that patients are well advised if they show such signs. Treatment and proper education may help alleviate the problems since the patient can be able to take care of themselves if well advised on what measures to take.

It has also been observed that obesity or high levels of fat content in the blood could lead to cardiovascular diseases, and therefore it has the potential risk of increasing the development of hypertension which could lead to a stroke. Nurses can support patients with a weight loss

plan, aiming at achieving and maintaining the recommended body mass index (BMI) of between 18.5 to 24.9 kg/m<sup>2</sup> (Perry 2012; Theofanidis & Gibbon 2014).

The input of nurses in advising and monitoring feeding habits of patients can highly influence the weight management. Patients feel motivated when nurses assist them to make decisions since they feel that they already have adequate information. The education to the relatives and significant others also was noted from 3 articles that it was of great importance in the improvement of quality of life of stroke patients. Patients may be advised on how to exercise regularly since it is beneficial to health and also helps to keep check on the weight (Perry 2012).

## **5.2 Determination of early signs and complications**

Nurses would determine early signs and complications by assessing the patient's vitals regularly in order to determine a patient's normal body functions. This includes temperature levels, blood glucose levels, blood pressure levels and the respiration rate. Laboratory tests and assessment of functionality could also help to determine an early sign or a further complication. Theofandis and Gibbon (2016) recommends that upon admission, a general assessment of the patient's condition should be immediately conducted to determine their baseline neurological status. Close monitoring of patients and prompt action is of great essence.

Close monitoring of patients facilitates "early detection of hypoxia, hypoglycemia, hypotension, cardiac arrhythmias, and elevated body temperature, especially during the first 48 up to 72 hours post stroke onset". This would help to determine the appropriate actions that need to be taken, including possibilities for referrals and in turn could help in saving lives of stroke patients.

### **5.2.1 Venous thromboembolism as an early sign of stroke**

According to Cavalcante et al. (2011), it is the responsibility of nurses to carry out patient's screening in order to facilitate in thrombolytic therapy and administer anticoagulant medication as prescribed. The American Heart Association, Council on Cardiovascular Nursing and Stroke Council explains a number of recommendations for thrombolytic treatment. These may include neurological assessment, vital signs assessment and careful monitoring of the body health status during r-TPA infusion. The nurses need to involve the medical team in case of drastic changes in patient's vitals, administering oxygen depending on the oxygen saturation levels. It is also important to monitor patients to prevent haemorrhagic complications, continuous monitoring of heart activity to ensure that the patient is in a stable condition and to encourage patients to have bed rests.

Nurses are required to perform regular monitoring to prevent complications and where necessary, make referrals for specialized treatment. Stroke patients may suffer from blood clots forming in their veins such as in the legs, most especially due to prolonged periods of immobility. Nurses ought to assist patients with bed exercises to reduce chances of clots, bed positioning and regularly change body position. They should facilitate the patients' movements as early as possible, helping them to sit on a chair and do as much exercise as possible. Nurses should also use compression stockings to increase blood flow of patients.

### 5.2.2 Communication, vision and cognition

#### Communication

The impact of stroke on patients may range from severe to mild. Essentially, stroke may impact on a patient's ability to communicate effectively as well as impacting on their vision and cognitive abilities in a variety of ways. A stroke patient may experience communication challenges such as aphasia, dysarthria and or dyspraxia.

According to Stroke Association (2012), aphasia is a condition responsible for most of the language problems of stroke patients. The patient may have difficulties in speech, understanding, reading and writing. The condition may be categorized as receptive (inability to understand) or expressive (inability to express oneself). Dysarthria, on the other hand, causes weakness of the muscles that are responsible for speech. These may affect muscles of the tongue, lips, mouth as well as breath and voice control muscles. Consequently, this may lead to experiences of a slurred speech, or affect voice quality and volume, and clarity (Jones et al. 2012; Stroke association 2012).

Finally, stroke may cause dyspraxia, which makes it difficult for a person to move muscles in the correct order and sequence to produce the sounds needed for clear speech and pronunciation of words. Nurses' interventions may include, among other measures, an assessment of the patient's condition as well as appropriate referrals to professional speech therapists. Nurses may also support patients with practical exercises to restore communication or acquire alternative communication skills such as use of gestures, communication charts as well as helping patients to learn and properly use electronic aid (Jones et al. 2012; Stroke association).

#### Vision

Stroke patients may develop eyesight problems, posing significant setbacks in the overall rehabilitation process. Problems associated with vision may include blurred or double vision, the patient's inability to see with one side, total blindness or inability to read. Generally, blindness or having low vision may cause patients to experience significant challenges

navigating their environment. It is therefore imperative that extra caution is taken to support them to cope with their situation. Besides providing assistance in the assessment of patient's eyesight problems and make appropriate referrals where necessary.

Nurses may also need to practice the following: Be courteous when introducing themselves to the patient, use their names and also introduce the patient to other roommates. They may then politely enquire what the patient is able to see without making assumptions and ensure the patient is included in all discussions pertaining the intended procedures and medical plans. After their time with the patient, nurses need to indicate to the patient when they are leaving the room and say goodbye. It is also critical that nurses remember to put the patients' "identifier sign" above the patient's bed or door, make necessary adjustments to the lighting, make large labels on the patients' pill bottle or use tactile marking such as braille. Patients should be informed before any procedure is done on them and their personal belongings should not be unnecessarily moved. Where necessary, nurses should facilitate patients' to have radio, talking watch, clock or braille so that they can also keep track of time (Barrett & Muzaffar 2014).

Patients with blindness or low vision should be assisted with mobility. Nurses need to help patients to get oriented to their rooms and environment. Rather than giving directions from a distance, nurses should begin by removing any obstacles that may be on the pathways and help walk the patient side-by-side, supporting them to gain sensory cues and work out distances. Finally, patients with blindness or low vision often need nurse's support with meals. It is important for nurses to be audible when reading the menu to the patient and allow the patient to choose from the varieties stated. Nurses should also deliberately describe the contents of the tray, either using the clock-face method or other methods (SIGN 2010).

### Cognition

Stroke patients may experience a wide range of post stroke cognitive challenges. The effect of stroke may cause a patient to have difficulties with memory, information processing, attention, mental flexibility, reasoning, language, planning and organization as well as orientation. For example, patients may develop agnosia, affecting only the use of senses, and thus lose their ability to recognize things. Alternatively, they may suffer from prosopagnosia, a condition related to the patient's inability to remember people; or even suffer "neglect", which results in failure to recognize one's body, causing patients to bump on things from time to time.

Stroke may also lead to the patients' inability to concentrate, resulting from a damaged right brain. Other stroke related problems of the memory may include patients' inability to plan or carryout complicated tasks, which is called apraxia. It could also cause dyspraxia, a condition in which the patient may have difficulties in carrying out simple tasks such as dressing or even

preparing a cup of tea. Stroke patients may also experience difficulties with social cognition, making it difficult to understand social situations such as accommodating someone else's point of view, exercising patience and knowing when to interject or contribute in a conversation. Nurses may assist with initial screening and assessment of patients and help in facilitating cognitive rehabilitation processes that help patients to restore or compensate for lost functions (Barrett & Muzaffar 2014; Jones et al. 2012).

### **5.2.3 Mood and emotional disorder**

SIGN (2010) observes that stroke may sometimes cause depression or anxiety associated with prolonged hospital stays, social embarrassment or even fear of falling. Furthermore, patients may experience difficulties in controlling their emotions, leading to uncontrolled tendencies for laughing or crying. Using appropriate training and help from clinical psychologists, nurses may intervene by performing standardized screening assessment of depression and anxiety as well as emotional disturbance. In addition, nurses may help in advising the doctors on the signs detected and the possible complications which could help in proper administration of prescribed antidepressant medication after proper assessment and communication to patients of their possible side effects. It is critical that the professional multiteam members establish trust with patients and their relatives to enhance the development of coping and adaptation strategies (Kim 2012; Theofanidis & Gibbon 2014; SIGN 2010).

## **5.3 Patient centred care**

Patient centred care focuses on improving the patients' health outcomes whereby the patients are also actively involved in the care process. Nurses' care is necessary in the management of stroke to promote the quality of life of stroke patients. From three of the selected articles, nurses' care was needed to help the patients cope with the complications that were brought about by stroke. The nurses focused on activities that could help to prevent secondary injuries and further complications to the patients. These ways of managing stroke were provided according to their needs. The groups included nutritional care, bladder management, pain management, pressure area care.

### **5.3.1 Nutritional care**

Nutrition is the process in which food is taken to the body in response to the bodily needs. It must be in proper amounts in order to help to provide energy to the body and it is the basis for good health. Lack of enough food or inadequate food intake may lead to reduced immunity in

the body and the person may be more prone to diseases, impaired developments in the mental health and could lead to lower productivity (WHO 2014; Perry et al. 2012).

Stroke can severely impact on the eating patterns, processes and habits of a patient, resulting in significant changes in their general nutritional status. According to Perry et al. (2012), it was observed that many stroke patients experience difficulties in maintaining an upright posture. Their chewing and swallowing abilities also become partially or permanently impaired due to loss of sensitivity in the mouth and therefore develop eating dependencies that may lead to insufficient dietary intakes. A swallowing disorder known as dysphagia occurs as a result of stroke in up to 65% of stroke patients. According to the studies, if it is not well managed it could lead to poor nutrition and increased disability. Consequently, patients experience starvation, subsequent loss of body tissues as well as muscle and body strength. Poor dietary intake weakens the patient's immune system, rendering them more susceptible to infections and a painstaking healing of wounds.

Fundamentally, the recovery and rehabilitation trajectory of patients is highly dependent on nutrition. Nutritional support is therefore among the most important components of nursing interventions in stroke care for patients. As a first step, nurses carried out assessments and tests to determine eating and swallowing difficulties. The outcomes of these tests and assessments aid nurses to appropriately plan for interventions that assist patients to manage their feeding (Perry 2012).

The studies also revealed that nurses would provide encouragement to patients in order to boost their appetite and in turn reduce food wastage. They would make good use of tactile prompts, cueing eating as well as reinforcement of desired behavior to optimize feeding outcomes. Nurses would advise patients on proper oral hygiene to avoid mouth infections. It was also observed that nurses have a responsibility to train patients so that they could care for their teeth independently. Other nurses, family members and caregivers could also be educated to provide assistance to patients in this regard. In addition, nurses would ensure that patients have fitting dentures and the teeth were well aligned for ease of chewing and swallowing (Perry 2012; WHO 2014).

Ordinarily according to the studies reviewed, stroke patients require assistance with feeding due to loss of mobility and sensory nerves. Nurses should ensure that tables and other necessary feeding equipment are within reach and rightly positioned where patients can access comfortably while sitting. Patients should also be assisted to put on assistive devices such as glasses, dentures and hearing aids to ease communication while eating food. The lighting of the room and the creation of good space surrounding the patient is also important to facilitate

ease of movement where the patient needs help or in case of a swallowing difficulty an urgent intervention can help save a life.

### 5.3.2 Bladder and incontinence management

Stroke patients have an inability to manage their bladders due to the failing nerves system that fails to communicate promptly to the brain when it's time to void or pass out urine. This can have severe social, emotional and medical ramifications on a stroke patient's life. Stroke patients experiencing difficulties in managing their bladder may feel socially isolated due to fear of untimely urine leakage as well as bad odours. In addition, they may, as a result of incontinence, develop medical complications such as skin breakdown, infections and urosepsis. (Jamieson, Brady & Peacock 2010).

Cournan (2012) advocates for an individualized and comprehensive bladder management program and proposes the following interventions that nurses could undertake to support patients: To begin with, there is need to conduct a comprehensive history of a patient's bladder control, diagnostic workup, history of incontinence, treatment as well as strategies used. This becomes very handy for the interdisciplinary team while developing their individualized plan of care. Secondly, the use of timed and prompt voiding as a strategy of bladder management is key. In timed voiding, patients who cannot independently perform toileting activities are supported to do so through the help of nurses at specific time intervals, and it is therefore a process initiated by the caregiver. On the other hand, prompt voiding involves the use of positive reinforcement to encourage patients when they request assistance with the need to void (Cournan 2012).

Thirdly bathroom training was proposed as a strategy in helping individuals to regain their sense of independence by trying to do without any assistance. A comprehensive programme is put in place to assist patients to learn how to access bathrooms using assistive devices such as grab bars, reaches, pull ups, manage their clothing and perform routine hygiene practices. Finally, there is need to help patients to perform pelvic floor exercises, which involves a series of rhythmic contraction of the pelvic floor muscles. This helps to strengthen the pelvic floor muscles and consequently reduce incontinence (Peacock 2010).

### 5.3.3 Pain management

The muscle-skeletal effects of paralysis and prolonged immobility often make stroke patients prone to pain. Patients may complain of hemiplegic shoulder pain (HSP), headaches and central post-stroke pain (CPSP). It was observed from the article that is very important for nurses to



initiate dialogue and use validated pain assessment tools to determine where patients are experiencing pain.

The best way of determining pain is through the patients themselves. This can be achieved by creating a safe environment for the patient and then gradually ask them in intervals about their status and the level of pain they may be experiencing. Facial expressions and movement while walking can also explain the level of pain. In the case of dementia stroke patients, nurses should pay attention to the patient's pain by making a number of critical observations. These include observing restlessness, tension and fear, strained movements, irritability, stiffness, clenched fists, violence during care, shouting, unpleasantness, crying, tightly closed eyes, fast breathing or shortness of breath.

Administration of prescribed medications to ease patient's pain is also a critical intervention bearing in mind the time of administration, the most appropriate way and the fastest route to be used to administer the medication. The sensitivity and creativity of nurses during care of patients is important. Making use of other simple techniques such as drawing patient's attention away from their pain through interesting conversations, stimulating and interesting games that the patients enjoy or giving the patient a snack they like such as ice creams helps a lot in pain management. However, a number of interventions may still suffice for nurses in regards to pain management (Simeone 2014; Kerr 2012).

Regarding CPSP, nurses need to be aware of its signs and symptoms and integrate ongoing assessment as part of the routine practice. Consequently, nurses need to communicate reports about pain to the multidisciplinary team for appropriate action and endeavour to inform both the patient and their relatives about CPSP. Similarly, patients should be appropriately referred to specialist colleagues for hemiplegic shoulder pain incidences. Moreover, nurses are also advised to use therapeutic positioning and handling techniques to minimize pain and prevent complications (Kerr 2012).

#### 5.3.4 Pressure area care

Pressure area care is a critical nursing intervention for stroke patients, risk assessment for pressure sores is a generic nursing skill that forms a critical component of a routine nursing plan of care. It is not uncommon for stroke patients to develop pressure sores due to long periods of immobility, especially where hospital facilities, expertise and staffing are insufficient. Regular skin examination as well as early mobility after the start of bed confinement is recommended to prevent the development of pressure ulcers, joint contractures and atrophies (Pinnock 2015; Cavalcante et al. 2011).

It is important for nurses to ensure that patients have suitable bed foam mattresses, filled with air that prevent pressure sores incase patient will be bedridden for long. They also need to regularly change the patient's body position in bed to avoid too much pressure on one area and put soft pillows between parts that press against each other. Nurses carry out activities such as: inspections of the skin, cleaning and applying preventive creams or powders on the vulnerable areas. In collaboration with physiotherapists, nurses help in developing a rehabilitation program that helps the patient regain movement and thus reduce the time spent on lying or sitting down for too long (Cavalcante et al. 2011; Pinnock, 2015).

#### 5.4 Patients' care plan

Generally, there are clinical guidelines that set out standards for quality of care in the management of general and specific diseases. Such guidelines are to be found in clinical pathways that provide important recommendations for setting out plans of care for stroke patients. It is argued that the outcome of any clinical intervention for enhanced quality of life of stroke patients is to a larger extent dependent on how the nursing care delivery is organized (Struwe, Baernhold, Noerholm, & Lind 2013).

##### 5.4.1 General care plan

A nursing plan of care plays a pivotal role in increasing the likelihood of desired health outcomes of stroke patients and must therefore be comprehensive and highly individualized. This plan of care is a well articulated project that is developed in several interfaces from admission to post discharge. The plan of care clearly stipulates the day to day interventions and progressive monitoring of changes in the rehabilitation processes of stroke patients (Potter & Perry 2010; Kerr 2012).

According to (Struwe et al, 2013) it is observed that designated stroke units play a quite essential role in stroke care, and are often considered the "gold standard". They, however, caution that designated stroke units are never an end unto themselves. It is recommended that a multidisciplinary team approach be well integrated within the organization structure of the stroke unit for it to be more effective and efficient in discharging its critical functions. The multi disciplinary team may compose of physician, rehabilitation nurses, as well as therapists.

As opposed to "primary nursing", in which a single nurse is responsible and accountable for specific patients within a set timeframe, multidisciplinary teams work collaboratively, each team responsible for a group of patients, often with a designated nurse as a team leader. This enhances the quality of care of patients since the team is able to interact around the patient's assessments, share knowledge as well as set out comprehensive individual treatment and care plans as well as goals.

It is critical that a nursing plan of care anticipates, right from the time of admission, a transition plan that facilitates continuity of care post discharge. Homecare conferences with the multidisciplinary team, with patients, families and home care providers may form an important component of the post discharge plan. This may facilitate decision making with regards to the patient's future care and possible home alterations that are critical for the patient's progressive health outcomes. The designated nurse may play a critical role in facilitating how the homecare conferences are organized and conducted, as well as important disease specific information is provided both to the patient and their respective families. Information sharing also forms an important component of nursing plan of care (Kerr 2012; Struwe 2013).

#### **5.4.2 Patients support and guidance**

Parke et al.(2015) states that "self management is a core response of healthcare systems globally", usually aimed at empowering individuals with chronic conditions to develop skills for better management of basic tasks for survivorship. This requires a consolidated effort and cooperation from nurses, family members, other caregivers as well as the stroke patients themselves.

The importance of a positive attitude and unwavering commitment among stroke patients is emphasized for successful rehabilitation. Nurses need to support and encourage stroke patients to maintain optimism. Patients often need to be appreciated and encouraged for whatever little successes they make. In general, nurses can offer nutritional education, assist with meal plans, behavior change and building confidence and resilience among stroke patients to better cope with their condition. This support should also be extended to family members and other caregivers. Nursing care is an important fulcrum by which patients lean for support while making effort to come to terms with the reality of the biophysical and emotional impact of their condition. Patient support and guidance go a long way in helping stroke patients build their self efficacy.

#### **5.4.3 Nursing professional competence**

A study conducted by Struwe et al.(2013) emphasized staff competencies as an important component of improved quality of care provided by nurses. The study reiterated the need for ongoing staff education to enhance expertise in stroke care. Having sufficient knowledge and skills is critical for early recognition of signs and symptoms, conducting assessments and tests, as well as managing complications arising from stroke. It is necessary that nurses possess and continuously update their knowledge of quality standards as well as their ability to initiate

individualized projects for nutritional care, pain management, discharge processes as well as other clinical complications related to stroke.

Team working and team building are also considered critical as part of the professional development of nursing staff. In order for designated stroke units to function effectively, sharing of knowledge among interdisciplinary teams is paramount. Nurses therefore ought to possess an awareness and open appreciation of other disciplines Peter (2012) such as physiotherapy, nutrition, psychological counseling among others. Appreciation of other disciplines and their contributions enhances the nurse's ability to better coordinate the multidisciplinary teams and maintain the cohesiveness in the designated stroke unit. Peter (2012) advises that developing team working and team building improves professional competencies; enhance trust and minimize potential conflict between professionals (Peter 2012).

## 6 Discussion

The findings of this thesis demonstrated the complexity of stroke and its subsequent impact on stroke patients and the central role of nurses in supporting patients in stroke management. According to the reviewed articles in this thesis, stroke is a major and leading cause of deaths globally and it could also lead to permanent disabilities for the survivors. The effect that stroke brings about is significant emotionally, socially and also financially to the individual and the society at large. The families of those affected also are left with a big burden of caring for their significant others to be able to cope with the daily activities of life.

The findings showed that, depending on the severity of the stroke and the affected areas of functionality among stroke patients, different nursing interventions would be appropriately applied. Ideally, this would be achieved through close collaboration among clinical practitioners through multidisciplinary units, usually headed by professional nurses.

Some authors argued that any appropriate nursing intervention for improving quality of care of stroke patients begins with the understanding of the risk factors for stroke and their possible modification and treatment. According to the findings, risk factors for stroke were identified as hypertension, smoking, diabetes, obesity, and high cholesterol, diabetes. The findings put emphasis on the critical role of nurses in providing relevant information and education concerning different risk factors so as to enlighten patients, caregivers and the general population. It also allows patients to evaluate their lifestyles and subsequently take better measures after surviving a stroke.

It is important that patients who have had stroke before, to regularly check on their blood pressure levels to avoid too high levels that could lead to hypertension. Patients who are suffering from obesity have a higher potential risk of hypertension that could subsequently lead to a stroke if not properly taken care. Nurses have a responsibility of supporting patients with weight loss care plans, devise ways of achieving and maintaining a body mass of between 18.5 to 24.9kg/m<sup>2</sup>, for example some authors argued that nurses could be involved in the nutrition planning of patients to ensure a balanced diet is consumed hence low fat content in the body. However this would be done with the help of other team care members in the professional field in order to gain better results. The objectives for nurses were to give support as the patients go through the recovery process and also as they cope with the effects of stroke.

It must never be assumed that people have pre-existing knowledge of risk factors of stroke, even in an era where such knowledge can simply be acquired through internet sources. Providing the right information and education by qualified clinical practitioners enhances credibility of such information and may further help in linking clients to other trustworthy sources. This is critical particularly where individuals have to continuously make life choices and decisions, more especially in seeking early medical attention as appropriate. It is notable that people value professional advice and need to be guided and encouraged even as they make choices in life. This would be necessary to form part of the regular routine practice for nurses, and ensure that it is well entrenched in plan of care.

From the findings, determination of early signs and complications was identified as a way to aid in improving quality of life of stroke patients. Early assessment of signs or any other complications arising from a previous attack and careful monitoring of body functions could help reduce the effects of stroke on patients. It is recommended that upon admission of patients, a general assessment should be carried out to determine the neurological baseline status which could help in early detection of hypertension, high glucose levels, elevated body temperature especially during the first onset of stroke. This early detection of signs and complications will eventually help to determine the appropriate actions that need to be taken, including possibilities for referrals and in turn could help in saving lives of stroke patients. The findings point out to the critical role of nurses in supporting patients with monitoring and managing blood pressure, blood sugar levels, as well as developing and adhering to lifestyle changes and exercise programs. These are long term commitments that require patience, determination and constant encouragement. Even at the face of despair, nurses need to continue being a source of motivation and console for stroke patients

In three different studies it was argued that nursing interventions are very important activities in the improvement of quality of life in stroke patients. This involves drafting care plans , setting goals together with the patients on how to improve their current status, following up

on those care plans and continuously evaluating if they are workable or not. Nurses have a responsibility of critically thinking through these plans in consultation with other professional team members in order to provide the best appropriate care.

An article by (Perry et al, 2013) mentioned the need for nurses to request feedback for their patients during care in order to understand them better and also improve on their giving of care. This also helps while evaluating the plans and eventually aids in giving patients holistic care. Patients and their caregivers may lack adequate information and knowledge on how to manage their condition. It is important, therefore, for nurses to support patients to acquire some basic skills such as how to monitor their blood pressure and blood sugar levels, as well as developing appropriate exercise schedules that are aligned to the patient's specific needs and capabilities.

The findings also insist on the centrality of patients' support and guidance. Patients must never be merely seen as passive recipients of clinical interventions, but active participants in their journey of recovery. Nurses, in exercising their responsibilities must include patients in the decisions they make as clearly stated in the findings. The journey of recovery for stroke patients, while largely dependent on medical interventions, is also determined by individual patient's contributions and effort. Involving patients in key decisions regarding their treatment and procedures not only build trust between the patients and nurses but also help patients to build the requisite resilience and a positive attitude.

It is therefore important that nurses adhere to their ethical code of conduct and professionalism, taking cognizance of the fact that the recovery process of many stroke patients is largely dependent on their interventions. Having a good plan of care is part of exercising professionalism, which facilitates patients to take small progressive steps in their rehabilitation process.

Furthermore, the findings emphasize the need for ongoing training of nurses as part of building their professional competency. This must be taken seriously, not only by individual nurses, but also their supervisors so that all nurses have a well articulated career development plan.

## 6.1 Trustworthiness

The trustworthiness in a qualitative research is assessed by the credibility, dependability and confirmability during the whole process of writing the thesis. For proof of trustworthiness and the worth of it to be seen in writing a thesis, it is expected of the authors to prepare well in advance before the thesis writing, carry out data collection, data analysis, comprehensively grouping the information into findings and a discussion of the findings and thereafter report on the results of the whole process of thesis writing (Kääriäne, Pölkki, Utriainen & Kyngäs 2014).

The authors of this thesis ensured credibility by reading articles, journals and books that had reliable information about the topic that had been selected in consultation with the teachers that gave their guidance. This helped in the formation of the research question. 'What kinds of nursing interventions are needed to improve quality of life in stroke patients? When the authors of this thesis decided to start the thesis, a thesis contract was written and accepted by the tutors. The authors also drafted a thesis plan which was presented to the tutors and advised on how to carefully write up the thesis based on the research question and following the purpose statement.

The authors ensured dependability was adhered to through carrying out several consultations and modifications in choosing the kind of methodology to use in answering the research question. The two authors agreed upon using literature review which follows the principles of systematic literature review which was best suited for their topic. A literature review seeks to combine different data from different researchers in order to come up with a conclusion. This thesis describes the nursing interventions needed in improving quality of life in stroke patients. Steps that were carried out involved literature search using already published articles in 4 databases namely Proquest, Cinahl, sage and science direct, assessment of the quality of the studies was done through data appraisal, data extraction from the selected articles was carried out, followed by data analysis and reporting of findings.

The authors ensured confirmability by ensuring that the articles that were selected for review was data from academic databases using Laurea Finna portal whereby the librarian of the school guided the writers on how to use the portal. These databases were Cinahl(Ebsco), Sage, Proquest central and sciencedirect these were in English language. Both authors were fully aware and had mutual understanding while searching, reviewing and reporting on what was relevant for the thesis. Search words used during the data extraction process were relevant to the purpose of the study and they answered the research question. The keywords used were stroke, stroke patient, Improving quality of life, nursing interventions these were explained earlier in the thesis to help the reader understand their meanings.

During the preparation, organization of information and reporting of results of the findings both authors fully participated through constant communication between themselves, consultations with the tutors, attendance of thesis meetings to have a common understanding in each stage of the writing. The approaches that were adopted by the authors in each stage of the process, recognized the criteria and ensured that trustworthiness was followed. (Polit & Beck 2012).

## 6.2 Ethical considerations

The authors took into account credibility measures to ensure no plagiarism. In this regard, proper in text citations of the primary text was done and referencing were made in paragraphs

and in the list of references , acknowledging authors and publishers' rights as appropriately as possible. In some instances direct quotation by referencing and use of quotation marks was done as paraphrasing would have distorted the meaning. Since the study was conducted based on the principles of a literature review, there was no need for obtaining consent from institutions and individuals except for the need for proper citations and referencing.

The authors also ensured dependability of the thesis by giving an in-depth methodological description of the thesis to allow the study to be repeated in a different setting and that it would give same results. All the information used in writing of this thesis was valid and evidence based, to the best knowledge of the authors. Only scientific articles were used and there was no doubts on the authenticity of the materials used. Articles were objectively reviewed on the basis of their relevance to the research question and the purpose statement and the search strategies clearly outlined, disclosing the step-by-step sequence of narrowing down the literature as required in a systematic literature review (Boell & Kecmanovic 2006).

This thesis has been written by two authors, who actively participated and concretely deliberated throughout the writing process. " An author is generally considered to be an individual who has made a significant intellectual contribution to the study" (Fennell 2015). Both authors have been named appropriately, are both accountable for the research work, have equal rights and equal contribution into the research work carried out and final writing up of the thesis.

According to Fennell 2015, Conflicts of interests may emanate as a result of personal relationships, academic competition, and intellectual passions. There was no self serving stake by the authors on the results of the thesis or any potential direct conflict with the topic that the authors were researching which ensured that there was no bias in the process. There was mutual agreement and understanding that was reached by both parties in instances where there was possibility of errors and ethical dilemmas and the authors had a clear understanding as to the reason for writing the thesis.

### **6.3 Limitations and recommendations**

The thesis writing process experienced a number of limitations despite the fact that the authors were able to answer the research question and the purpose was also accomplished according to the authors. The database searches were confined to a subset of academic journals, leaving out potentially useful literature such as book chapters and conference proceedings from web searches since the authors could only use scientific materials due to their reliability and confirmability. the database searches used limited the search scope since only a few articles subscribed to in the database search were accessible. Some articles with relevant data could



not be accessed due to lack of rights to use them or had to be bought online. This left out a significant number of articles outside the databases that had been chosen.

The search criteria restricted searches to language, limit in years, relevance of abstract to the purpose statement and the research question. This confined the search only to articles that were full text, written in English, 2010 to 2016 as well as free accessible ones, subsequently this excluded any useful article that fell outside this scope and was therefore not reviewed despite their potential relevance. Language being one of the major aspects that were considered limited the search considerably, we recommend that published materials be translated to the major international languages to improve accessibility to any reader who is interested in such kind of a topic.

There was less research found on nursing interventions carried out in order to improve quality of life in stroke patient, most of the articles described stroke as a disease and its effects on the patient's, described roles of physiotherapists and nutritionists and rehabilitation as a way of stroke management. Despite all these, the authors aim of acquiring information on improving quality of life of stroke patients was achieved and any reader who intends to do a further research can get that information from this thesis.

The novice authors lacked sufficient experience in conducting a literature review, therefore limiting the quality of the review process. This meant that potentially useful data may have been excluded during data selection and extraction processes. Despite that limitation the authors acquired more knowledge by studying and following the principles of a systematic literature review. Through the process of researching, the authors also improved their planning skills, ability to explore and explain given studies by following the phases of a systematic literature review.

The authors recommend further research on nursing interventions for stroke patients be carried out using a different research design. This would help to verify the results of these findings in a different setting and eventually be useful in nursing care and improvement on how to care for stroke patients.

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## Appendix

### List of reviewed articles

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## Appendix

### List of Abbreviations

BMI- Body Mass Index

CASP- Critical Appraisal Skills programme

CINAHL- Cumulative Index to Nursing and Allied Health Literature

TIA- Transient Ischemic Attack

WHO- World Health organization

WHO- World Health organization

Hsp- hemiplegic shoulder pain

CPSP- central post-stroke pain

SIGN- Scottish Intercollegiate Guidelines Network