

**PROFILE OF, AND CHALLENGES EXPERIENCED BY, STROKE
PATIENTS ADMITTED AT HAYDOM LUTHERAN HOSPITAL,
TANZANIA**

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**A thesis submitted in fulfilment of the requirements for the degree Master of Science in the
Department of Physiotherapy, Faculty of Community and Health Sciences: University of**

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ABSTRACT

Background and aim: Despite the high number of strokes globally, and among people of African origin in particular, there are few available data on stroke in most countries of sub-Saharan African (SSA), including Tanzania. In addition, the profile and challenges affecting stroke patients in these countries has not been adequately explored. The aim of this study was to determine the profile and explore the challenges experienced by stroke patients admitted at Haydom Lutheran Hospital in Tanzania. The objectives of the study were to determine the documented risk factors among the patients admitted to Haydom Lutheran Hospital, to identify the stroke on-set admission interval and length of hospital stay, to identify the process of physiotherapy for the stroke patients, and to explore the challenges experienced by stroke patients discharged from Haydom Lutheran Hospital, Tanzania.

Methods: Qualitative and quantitative research designs were used to collect the data. The quantitative design used a retrospective descriptive study, in which medical records of stroke patients were reviewed. The qualitative approach included in-depth interviews to collect information regarding the challenges experienced by stroke patients residing in Haydom, Tanzania.

Existing medical records were perused to obtain information related to demographic profile, medical characteristics and rehabilitation data among stroke patients admitted at Haydom Lutheran Hospital. Relevant data was captured on a data information sheet. The SPSS (14.0 version) and Microsoft Excel (2007) were used to analyse quantitative data. Descriptive Statistics were used to determine ranges, percentages, frequencies, means and standard deviations calculate. The qualitative interviews were transcribed verbatim and also translated from Kiswahili to English. Stated concepts were coded, grouped into categories, and reduced into sub-themes and main themes. Prior to conducting this study, final permission was obtained from the Senate Research Grant and Study Leave Committee at the University of the Western Cape as well as the relevant authorities of the Tanzania Ministry of Health, Tanzanian National Institute of Medical Research, and the Administration of Haydom Lutheran Hospital. Written informed consent were obtained from the participants prior to interviews.


Results: A total number of 145 stroke patients were admitted to Haydom Hospital between 1st January 2004 and 31st December 2010. However, only 128 of the potential sample participants met the inclusion criteria for the sample. The mean age of the participants was 57.7years, (SD=18.673). Of these, 104 (81.2%) had haemorrhagic stroke and 24(18.7%) had ischemic strokes. HIV infection (78.1%), previous stroke (74.2%), smoking (58.5%) and hypertension (55.4%) were the most common risk factors for stroke. Among the participants, the documented impairments included emotional impairments 42(32.8%), speech impairment 47(36.7%), cognitive impairment 39(30.4%), muscle impairment 36(28.1%), and occurrence of coma 33(25.8%) respectively. The mean time from onset of stroke to admission was 1.2 days with (SD=0.42 days). The mean length of hospital stay was 12.16 days (SD=4.1 days), the majority (61.7%), started physiotherapy within 3 days after admission, mean duration of physiotherapy was 14.1 days (SD=5.79), and the mean number sessions of physiotherapy 3.7days (SD=18.8 days). The challenges that emerged during the qualitative interviews with participants were limitation in walking activities, inability to return to work and to participate in leisure activities as before the onset of stroke, and environmental factors such as physical barriers and attitude of family.

Conclusion: The findings of the research reveal that stroke in Tanzanian patients occurs at a relatively young age, and that frequency of intra-cerebral haemorrhage is higher than that reported in developed countries. The clinical presentations and risk factors are similar to those in other studies. The qualitative findings revealed that the stroke patients had problems with limitation of activity, participation restrictions, and environmental challenges. They also expressed uncertainties as a result of a lack of knowledge about stroke and its effects, and discharge challenges relating to rehabilitation. These challenges should be addressed in the process of management of patients with stroke in the research setting.

DECLARATION

I hereby declare that “**Profile and challenges experienced by stroke patients admitted to Haydom Lutheran Hospital ,Tanzania**” is my own work, that it has not been submitted for any degree or examination at any other university, and all sources used or quoted have been acknowledged.

Simon Azaria Maqway

Signature.......... November, 2012



Witness

Prof. Anthea Rhoda

Signature November, 2012

DEDICATION

This study is faithfully dedicated to: The **LORD ALMIGHTY GOD** who strengthened me and whose watchful eye helped me through the moments of my weakness and discouragement.

I dedicate this thesis to my wife, Elizabeth. R. Laway for her love, patience, understanding and support, and to my daughter, Glory A. Simon and my son's, Godwin and Sifaeli., May God continue to bless and protect you.



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My sincere gratitude to the Tanzanian National Institute for Medical Research (NIMR) for their patience and their helpful comments, during my data collection, and to the Research Ethics Committee for their approval for me to conduct this research study at Haydom Lutheran Hospital, Tanzania.

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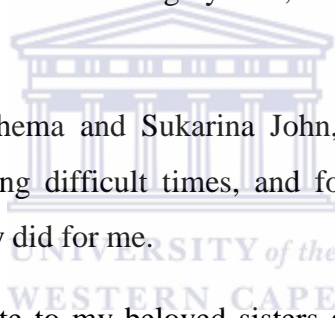


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ABBREVIATIONS LIST

ADL	Activity of Daily Living
AID	Acquire Immune Deficiency Syndrome
BIM	Body Index Mass
CT	Computerized Tomography scans
CVA	Cerebral Vascular Accident
DALYs	Disability-Adjusted life year's services
FIM	Functional Independent Measure
FIT	Full integrated treatment
HBC	Home based care
HBP	High blood Pressure
HIV	Human Immunodeficiency Virus
HLH	Haydom Lutheran Hospital
ICF	International Classification of Function
LOS	Length of Hospital Stay
MOH	Ministry of Health
MONICA	Monitoring of Trends and Determinants of Cardiovascular Disease
MRI	Magnetic Resonance Imaging
MRR	Medical Records Review
NIMR	National Institute Medical Research
OAI	Onset-Admission Interval
PWD	Persons with Disabilities
SASPI	South African Stroke Prevention International Project Team
SD	Standard Deviation
SPSS	Statistical Package for Social Science
SSA	Sub-Saharan Africa
TIA	Transient Ischaemic Attack
UN	United Nations
USA	United States of America
WHO	World Health Organization

CHAPTER ONE: INTRODUCTION

1.1 INTRODUCTION

This chapter presents the background of the study, the statement of the problem, the motivation for the study, the research questions, and the aim and objectives of the study. In addition, it provides the definitions of the key terms used.

1.2 BACKGROUND OF THE STUDY

Stroke is defined as “rapidly” developing signs of focal or global disturbances of cerebral or intra cranial neuronal function with symptoms lasting for more than 24 hours, or leading to death or disability of the patient with no apparent cause other than that of vascular origin (WHO Monica Project, 1988). It is the third leading cause of death worldwide and the cause of acquired disability in adults in most regions of the world (Kengne & Anderson, 2006).

Countries of low and middle-income have the largest burden of stroke, accounting for more than 85% of stroke mortality worldwide (Walker, McLarty, Masuki, Hendry, David & Massawe, 2003). The overall stroke incidence rates in low to middle income countries exceeds the level of stroke incidence seen in high-income countries by 20% (WHO, 2006). Furthermore, it was established that if adequate measures are not taken, the death rate of stroke is expected to increase from 5.7 million to 6.5 million in 2015 and up to 7.8 million in 2030 (Connor, Thorogood, Casserly, Dobson, & Warlow, 2004).

The burden of non-communicable diseases such as stroke is increasing in sub-Saharan Africa (SSA), adding to the tropical diseases burden in that area, and the inadequacy of health care resources could be further contributing factor (Bonita et al., 2006). The prevalence of strokes, as well as the risk factors, stroke types, environmental factors and the genetic causes of stroke remain unclear and under-researched in most countries of SSA, including Tanzania (Walker et al., 2000). According to Walker et al. (2003), Tanzania has not been spared the effects from stroke. At the time of the study, there was a high occurrence of impairment, dependency as well as death as a result of stroke and the incidence of stroke in urban Tanzania was at the time of the

study was about 3 times higher than that in rural areas (Walker et al., 2003). This suggests that urbanization may be increasing the risk of stroke in developing countries.

A number of risk factors for stroke have been identified in the literature. Lack of knowledge among people about the risk factors for stroke has been found to be one of the main reasons for increased stroke incidence, disability and death in Tanzania (Walker et al., 2000). The WHO (2005) found that one way of reducing stroke in a population is early prevention of risk factors causing stroke. Common risk factors for stroke include high blood pressure, diabetes, hyperlipidemia, physical inactivity, smoking, heavy alcohol use, arterial fibrillation; coronary heart diseases, and congestive heart failure (Salter et al., 2007), and often occurring as a result of an individual's lifestyle, and are referred to as modifiable risk factors. A study done in the United Kingdom (UK) in 2000 found that 87.5% of first-time stroke patients had at least one modifiable risk factor for stroke (Redfern, Mckevitt, Dundas & Rudd, 2000), and about 75% was recorded in Canada (Wilson, Taylor, Phillips, Stewart, Dickson & Ramsden, 2001).

A large number of stroke survivors are left with a residual disability (Boita et al., 1997; Walker et al., 2000; SASPI project team, 2004). A study done in 1997 in New Zealand showed one third of the stroke population required assistance with at least one activity of daily living (Bonita et al., 1997). Walker et al. (2000) reported that in Tanzania the proportion of people needing assistance with at least one activity of daily living was 60%, whilst in 2004 66% of the stroke population in South Africa needed assistance (SASPI Project Team, 2004). Chapter two of this thesis describes how, disability post stroke can be conceptualized within the International Classification of Functioning, Disability and Health (ICF). Common impairments that occur post stroke include paralysis of one side of the body and difficulty in swallowing (Lawrence, Charles, Donnas, Stewart, Howard & David, 2001). Labi (2006) alludes to depression and anxiety as common post stroke impairments. The impairments caused by stroke may lead to activity limitations and an inability to interact with the environment, and may result in stroke patients being restricted in their participation in various life situations in their communities (Hackett, Mayo, Carlton, Pang & Miller, 2007; Rhoda, 2012). The various activity limitations stroke patients experience include mobility, walking, self-care activities (including dressing, bathing, using the toilet, and eating), domestic activities (such as cooking, cleaning and preparing meals), and participation restrictions such as an inability to return to the previous work or difficulties in taking part in

leisure activities (Rouillard, et al., 2012, Rhoda et al., 2011). The loss of independence, mobility, and physical capacity have been highlighted as a concern among stroke patients (Mumma, 2006). The loss of normal functioning after stroke could lead to changes in self-concept, with stroke patients being preoccupied with the idea that they may no longer be normal or able to return to their previous life (Becker, 2003). Environmental factors conceptualised in the ICF could be a barrier to, or a facilitator for, stroke patients' functioning. These barriers include physical, social and attitudinal barriers (WHO, 2001). Caban (2007) also cited attitude challenges amongst the various environmental challenges stroke patients who have been discharged from the hospital experience, one example being that some people interpret stroke disability as a punishment from God. Thus, as Mumma (2006) found, the number and variety of challenges in lifestyle and reintegration into their communities stroke patients encounter cannot be underestimated

The profile of stroke in sub-Saharan countries could differ from that in the developed world, as it has been found that stroke occurs in a younger population in this region (Kengne & Anderson, 2006). Many studies have shown that information contained in a profile of stroke could be used to implement effective prevention and rehabilitative initiatives (Feigin, Lawes, Bennett, & Anderson, 2003; Kengne & Anderson, 2006). A profile of stroke in a certain setting would include the patients in that setting, information relating to the demographic profile, type and causes of stroke, the risk factors of stroke in the population, the clinical features (impairments) that occur as a result of the stroke, and information related to the management of stroke, including rehabilitation interventions provided (American Heart Association, 2008). A profile of stroke for a certain population could therefore assist with the implementation of interventions that are appropriate to that population (Harwood (2005).

Also important to consider in the management of persons with stroke would be information about their experiences of living with a stroke (Salter, Hellings, Foley, & Teasell, 2008). Understanding the challenges experienced by stroke patients, such as limitation in mobility, self-care activities, and challenges in fulfilling certain roles as mentioned above, is of great importance for their rehabilitation (Orencia & Ballard, 2003). Burton (2000) argues that exploration of the way these challenges evolve over time is essential in facilitating the patient's adjustment to his or her situation, and reintegration into the community. In this context, as has been mentioned, besides the barrier of physical difficulties, other factors such as emotional state,

could also hinder the reintegration of patients and should be taken into account (Downswell, Lawler, David, Young, Forster & Hearn, 2000; David & Madden, 2006).

1.3 RATIONALE FOR THE STUDY.

In the course of working as a physiotherapist at the Haydom Lutheran Hospital, the researcher observed that stroke patients admitted to this hospital were medically managed, received physiotherapy only while in hospital, and were discharged when medically stable. These patients, who are often discharged while in need of further treatment, are sent home with a little or no follow up and no rehabilitation within their communities. They are also discharged without preparation for their post discharge domestic environment. Patients with whom the researcher had contact post discharge, highlighted a lack of transport and a loss of respect by the community as two of the challenges they experienced. It was and is therefore clear that these patients experience major challenges post discharge from hospital.

1.4 STATEMENT OF THE RESEARCH PROBLEM

Despite the high burden of strokes globally, and among people of African origin in particular, there are few available data on profile and on the specific challenges experienced by stroke patients in most countries of sub-Saharan African (SSA), including, Tanzania. As far the researcher is aware, there exist no available data concerning the profile of stroke patients admitted to Haydom Lutheran Hospital.

Limited information about the profile of the stroke patients, which does not include the challenges they experience post discharge, could hamper planning and implementation of sufficient and appropriate support and rehabilitation services for them. Limited and inappropriate services for patients with stroke could increase their mortality and disability post stroke. It was for these reasons that the researcher decided to identify the profile of stroke patients admitted at Haydom Lutheran Hospital, and the challenges they experience, particularly post discharge.

1.5 RESEARCH QUESTIONS

This study addressed two research questions:

1. What is the profile of stroke patients (demographic, medical, rehabilitation) admitted to Haydom Lutheran Hospital in Tanzania from 1st January, 2004 up to 31st December, 2010?
2. What are the challenges experienced by stroke patients after discharge from Haydom Hospital Tanzania?

1.6 AIM OF THE STUDY

The overall aim of this study was to identify the profile of, and challenges experienced by, stroke patients admitted to Haydom Lutheran Hospital in Tanzania, from 1st January, 2004 up to 31st of December, 2010.

1.7 OBJECTIVES OF THE STUDY

In order to attain the aim of this study, the following objectives were identified with the aid of the information that could be found in the medical records.

1. To determine the documented risk factors among stroke patients admitted at Haydom Lutheran Hospital.
2. To identify the interval between stroke on-set to time of admission and length of hospital stay at Haydom Lutheran Hospital.
3. To identify the process of physiotherapy treatment for the stroke patients:
 - 3.1 Percentage of stroke patients who receive physiotherapy;
 - 3.2 Time of commencement of physiotherapy treatment after date of admission;
 - 3.3 Attendance by stroke patients of physiotherapy sessions from admission to discharge.,

4. To explore the challenges patients experience with regards to activity limitations, participation restrictions, and various environmental factors.

1.8 DEFINITIONS OF KEY TERMS

Stroke refers to a cerebral vascular accident (CVA) defined by the World Health Organization (WHO) as “rapidly” developing signs of focal or global disturbances of cerebral or intra cranial neuronal function, with symptoms lasting for more than 24 hours or leading to the death of the patient with no apparent cause other than that of vascular origin (WHO Monica Project, 1988; WHO, 2005). This definition excludes transient ischemic attacks (TIA), which last for less than 24 hours), subdural or extra-dural haemorrhage, and infarction or haemorrhage secondary to infection, or malignancy (Bonita et al., 2006).

Profile is a description of the clinical features, type and causes, risk factors of stroke, its rehabilitation and functional deficit of the people affected by stroke (Wasserman et al., 2009).

Disability is an umbrella term which includes impairments, activity limitation, and participation restrictions (WHO, 2001). It denotes the negative aspects of interactions between an individual who has a health condition and the individual’s contextual factors which are environmental and personal factors (WHO, 2001).

Rehabilitation is the combined and coordinated use of medical, social, educational, and vocational measures used for training or re-training individuals disabled by disease or injury to the highest possible level of functional ability, social integration, a better quality of life and self-actualization, consistent with physiological and environmental limitation (Department of Public Health, 2000). It can also refer to all the measures aimed at reducing the impact of disability for an individual, enabling him or her to achieve independence, social integration, a better quality of life and self-actualization (Hellander, 1999).

Activity is the execution of a task or action by an individual e.g. walking, dressing, and rolling (WHO, 2001).

Activity limitation is defined as the difficulties that the individual would have in executing various activities e.g. walking, dressing, toilet use, rolling, transfers, stairs, bed mobility, feeding, and communication (WHO, 2001).

Participation is the active involvement of a person in life situations e.g. social activities, work, family care as parent (WHO, 2001).

Participation restrictions refers to problems that an individual may experience in involvement in life situations e.g. return to work, family care, etc. (WHO, 2001).

Environmental factors include physical, social, and attitude towards the environment in which people live and conduct themselves e.g. policies, physical environment, attitudes of people, family support, they can be barriers or facilitators to stroke patients (WHO, 2001).

Impairment is defined as a problem which an individual could have within his/her body function or structure, experienced as a significance deviation or loss (WHO, 2001).

Personal factors are features of the individual that are not part of the health condition or health state e.g. race, gender, age, fitness, habits (WHO, 2001).

Challenges: A challenge is something that, by its nature or characteristics, needs or serves a serious test or observation for an individual for it to be done successfully, or difficulty in doing a job or in understanding that it is stimulating to the one who engages in it.

Environmental barriers are environmental factors that impede the performance of participation in life activities (Doyle & O'Donovan, 2008).

Muscle tone impairment in this study refers to flaccidity, spasticity or reduced power to less than grade 2 (Kaplan et al., 2005).

Cognitive impairment in the context of the study refers to any memory or level of consciousness impairment (Hicks, 2007).

Emotional impairment in this study refers to depression and/or anxiety (WHO, 2006)

Spasticity in the context of the study means increased muscle tone or hyper-tonicity (Hicks, 2007)

Flaccidity in this study refers to decreased muscles tone or atrophy (Wasseman et al., 2009)

Speech impairments in this study refers to difficulties in articulating, making meaningful sounds or forming words (Stroke Education, 2006)

1.9 OUTLINE OF THE CHAPTERS

Chapter one has presented the background of the current study. It has highlighted the statement of the problem, motivation, research questions, aim and objectives of the study. Finally, it has provided the definitions of the key terms.

Chapter two will present the literature review, which includes the definition of stroke types and the risk factors of stroke, causes and the epidemiology of stroke. Furthermore, it presents rehabilitation of stroke patients, and the clinical features for stroke. Lastly, the challenges experienced by stroke patients are reviewed.

Chapter three focuses on the methods used to collect data including the description of the study setting, the research design, the participants involved (population and sample), the instruments for data collection, the procedures for data collection and the methods for data analysis. At the end, the chapter concludes with the descriptions of ethical considerations pertaining to the study.

Chapter four presents the results and discussion of both quantitative and qualitative methods of the current study. Furthermore, the ranges, means, standard deviation, frequency and percentages were used to present descriptive statistics while the Chi-square and correlation were used to test the relationship between variables. In qualitative method, an in-depth interview method was used and then the interviews were transcribed and sorted in themes and subthemes. The results are discussed in relation to findings of other studies.

Summary of the study findings, conclusion and recommendations are provided in chapter five, which is the last chapter of this study. The chapter ends by presenting the strengths, weaknesses and limitations of this study.



CHAPTER TWO: LITERATURE REVIEW

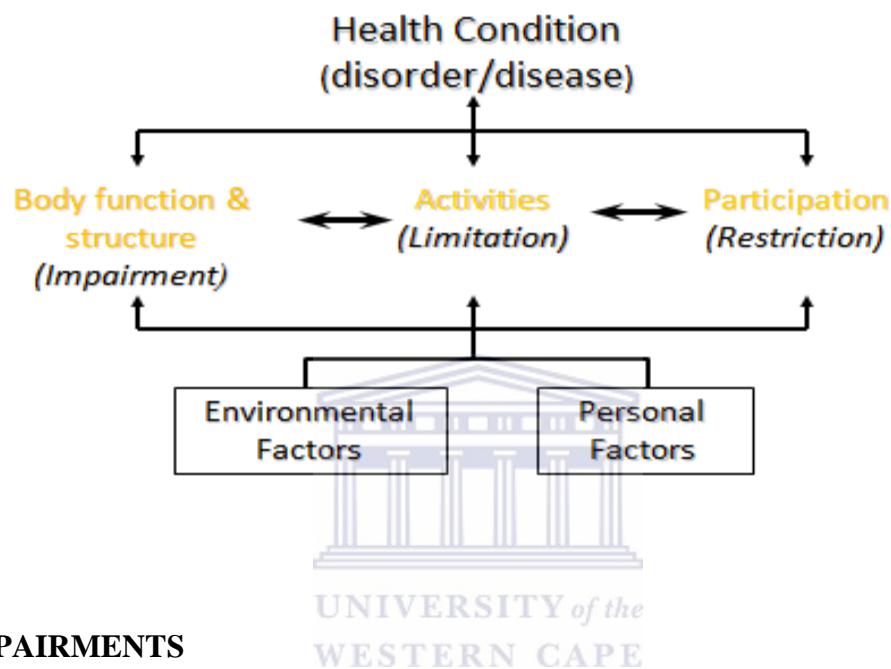
2.1 INTRODUCTION

This chapter is organized into five sections, beginning with the stroke disability, which was described within Conceptualized ICF (WHO, 2001). The second section reviews the risk factors and rehabilitation for stroke patients. The third section reviews the methodology sections and tools used compared with the findings of other relevant studies. Thereafter, in section four, the chapter presents reviewed concepts and the different therapies used in neuro development treatment (NDT). The chapter ends with a summary of the literature review presented in the chapter.

2.2 STROKE DISABILITY

As explained in chapter one, disability post stroke can be conceptualised using the ICF. In the framework of the ICF (WHO, 2001), disability is the umbrella term which encompasses impairments, activity limitation, and participation restrictions (WHO, 2001). The ICF further categorises the negative aspects of interactions between an individual who has a health condition and the individual's contextual factors, which are environmental and personal factors (WHO, 2001).

Figure 1.1 ICF Model of Functioning Disability and Health as adapted from World Health Organization (WHO, 2001).



2.3 IMPAIRMENTS

Impairments are defined as changes in body functions and structures (WHO, 2001) which include physiological and psychological functions that result as a primary (e. g, hemiparesis, cognitive dysfunction), or secondary (e g, contractures, decubiti) consequence of stroke. It has been well established that these impairments may lead to several negative impacts on patients and their families in various situations in their communities and homes (Pang, 2007). The effects of stroke depend upon which part of the brain is affected and the extent of the damage; a massive stroke may result in death (Epping, Jordan, Galea, Tutuitonga, & Beaglehole, 2006). A small stroke may result in minor difficulties and pain, which may disappear completely over time (Barrett, 2002).

Common impairments occurring as a result of stroke are reduced motor function, cognitive impairments, sensory deficit, abnormal muscle tone, visual impairment, perceptual and

communication problems, and depression (Lawrence, Charles, Donnas, Stewart, Howard & David, 2001). The physical impairments occurring as a result of stroke vary according to the individual and include paralysis of one side of the body and difficulty in swallowing (Lawrence et al., 2001). Labi (2006) to depression and anxiety as common post stroke impairments. Brokan et al. (2011) revealed how the effect of stroke on the brain may cause difficulty in swallowing (dysphasia) and speech problems. Dysphagia that occurs as a result of stroke impacts on the caregiving of these patients (Khondowe, 2006).

Motor Impairment

A common consequence of stroke is motor weakness and paralysis resulting in what is known as hemiplegia on one side of the body. The hemiplegia experienced may be complete (dense) or partial (Reid, 2004). The motor impairments associated with hemiplegia usually occur suddenly, and are usually first noticed as the person wakes up from sleep (WHO, 2005). These symptoms relating to paralysis of stroke depend on which side of the brain is affected by the lack of blood supply and on the size of the damaged area (Kengne & Andreson, 2006). Studies across the literature do not agree which side of the body is most commonly affected by hemiplegia. For example, Isagoda & Nakamura (2005) found the right side to be the most affected side (53.13%), compared to the left side (39.06%), and both sides (7.81). However, Rathore et al. (2002) reported the left side as being more affected (58%) compared to the right side (39%), and 4% for both sides simultaneously. Other studies have reported no significant difference between the right and left sides (Savas, Akkus, Soyupek, Iligun & Yidiz, 1999; Jette et al., 2005). In the USA, Ekstam (2007) found that, out of a sample of 972 stroke patients, 44% had right-sided hemiplegia, 43% had left-sided hemiplegia, and 13% had bilateral involvement. The weakness or paralysis from heiplegia results in unsteady gait and stiffness, or spasticity/flaccidity, of the muscles, and joint stiffness (Connor et al., 2004). Likewise, some people experience difficulty with eating or swallowing (dysphagia). Most of the impairments experienced by stroke patients will improve over time as the brain recovers. However, in severe cases they may cause long-term disability (WHO, 2006).

Cognitive Impairment

Cognitive impairment occurs in varying degrees post stroke (Lawrence et al., 2001; Saxena et al., 2007). For example, a prospective study conducted in UK by Lawrence et al. (2001) which explored the clinical features of acute impairments post stroke, found that cognitive impairment was present in 44.9% of the participants. A higher prevalence was reported in a cross-sectional study conducted by Saxena et al. (2007) in Singapore to ascertain the prevalence and baseline determinants of cognitive impairments in stroke patients. This study found that, on admission, 54.5% of the stroke patients were cognitively impaired. The difference in the reported prevalence of cognitive impairment could be explained as follows: the study conducted by Lawrence et al. (2001) had a bigger sample size of 1259 participants as compared to the 252 participants in the Singapore study. It is possible that a study with a small sample size might have less accurate results. Cognitive impairments interfere with thinking, awareness, attention, learning, judgment and memory. If the cognitive problems are severe, the person may develop an inability to recognize the existence of one side of the body exists. This is known as spatial neglect, or agnosia (Barret, 2002). The person has no awareness of one side of her or his body, or one side of his or her visual field, and is unaware of the deficit (Bruno, 2000; Reid, 2004).



Visual Impairment

Visual impairment has been found to be a common consequence following stroke (AHA, 2001). These problems can be associated with tissue damages in the visual occipital area of the brain, or in brain areas supplying the eye movement nerves. The extent and kind of visual impairment is determined by the part of the brain that has been affected by the stroke, which may result in weakness of eye movements, and double vision, which in turn may affect normal vision (WHO, 2006). Furthermore, according to John (2006) and Salter et al. (2008) stroke patients, might suddenly have trouble seeing and experience reduced vision in one or both eyes.

Speech Impairment

Hicks (2007) observed that stroke patients often have problems understanding or forming words. This includes difficulty or inability to understand or express language, known as dysarthria (motoric), and aphasia (understanding and finding the words), and are the most common speech

problems following a stroke event (Kim, 1996). Physical difficulty in speaking is associated with different types of stroke and the site of the brain affected. For example, according to Dobkin (2005), the inability to communicate effectively is a symptom present in many stroke patients. His study also found that about 20% of stroke patients have impaired expression and impaired comprehension of language. Speech deficit occurred in about 20.0% of patients with stroke (Rathore et al., 2002; Dobkin; 2005).

Psychological impairment

Hammzat (2006) found psychological impairment to be relatively frequent after stroke. The study conducted by Radanovic (2000) revealed that stroke patients exhibit inappropriate psychological behaviours in certain situations, such as inappropriate crying. Likewise, depression is a common impairment occurring after a stroke, and may be more than a general sadness and a sense of the loss of a previously active life. A prospective study conducted in the UK by Lawrence et al. (2001), which explored the clinical features of acute impairments post stroke, found that cognitive impairment was present in 44.9% of the participants. Furthermore, a higher prevalence was reported in a cross-sectional study which was conducted by Saxena et al. (2007) in Singapore to ascertain the prevalence and baseline determinants of cognitive impairment in stroke patients. This study found that, on admission, 54.5% of the stroke patients were cognitively impaired. The difference in the reported prevalence of cognitive impairment as has already been explained in 2.3.3 under 'Cognitive Impairment', in terms of the bigger sample size of Lawrence (2001 in comparison to that of the Singapore study and that a study with a small sample size might yield less accurate results. Post stroke depression may hamper recovery and in some cases may be associated with an increased risk of suicide. The study conducted by Aybek et al. (2005) to identify emotional behaviours in an acute stroke population over the first seven days following the stroke, revealed that 40% of patients showed sadness, 49% passivity, 17% aggressiveness, 53% indifference, 76% dis-inhibition signs, 18% lack of adaptation, and 44% denial reaction.

2.4 ACTIVITY LIMITATION

According to (WHO, 2001), activity limitations refer to the difficulties that stroke survivors experience in functional task performance, including activities of daily living (ADLs) and instrumental ADLs. Instrumental activities are those activities needed for people to function within their communities and to run their households. Other related activity limitations are walking, bed mobility, transfer from wheel chair to bed, self-care activities such as dressing, bathing, using the toilet, and eating and domestic activities which include cooking, and cleaning the house (Mayo et al., 1999; Rhoda et al., 2011; Rouillard et al., 2012). Instrumental activities that patients with stroke are not able to perform include washing clothes, shopping and housework, (Hartman-Maeir et al., 2007; Rouillard, 2006) Studies conducted in South Africa have found that travelling using public transport is also a limitation (Rouillard, 2006; Rhoda et al., 2011). The loss of independence, mobility, and physical capacity has been highlighted as a concern among stroke patients (Mumma, 2006).

Limitations in the ability to walk are a major challenge post stroke. The inability to walk leads to restrictions or failure, for example, to go to the cinema (if that was one of the client's hobbies) or to work in the garden (if the patient was previously a farmer) (WHO, 2001). Limitations in walking might bring about an increase in dependency on family, fear of falling, and a general failure to deal with daily living activities. Mayo et al. (2002) found in a Canadian study that 33% of 434 stroke clients six months post stroke showed significant limitations in their performance of the basic activities of daily living. In the same survey of Canadian stroke survivors, 54% of the interviewed clients showed marked restriction in the executive functions of housework and shopping. The proportion who reported trouble with participation in day-to-day life in the community, such as social recreation, and visiting family and friends, was 65% (Mayo et al., 2002). The authors made recommendations for improving the discharge experience of stroke patients through healthcare professionals understanding and exploring programs addressing the problems which emerged from the study, through keeping stroke patients fully informed, and sharing and validating their experiences, with a view to reducing their sense of isolation.

The study conducted by Pajac et al. (2006) found that using public transport is a problem among stroke patients and revealed that, out of 89 participants discharged from the rehabilitation centre,

six months after discharge from the unit, 67% of stroke patients reported dependency on others for transport. Out of the 89 stroke patients, 50% replied that they needed relatives to help them, and 55% felt able to go out by themselves. Thus, loss of functional ability after stroke resulting in dependency on others can lead to changes in self-concept, with stroke patients being preoccupied with ideas that they may no longer be normal and able to return to their previous lives (Becker, 2003).

Participation restrictions

Participation restrictions refer to the problems stroke survivors encounter when attempting to re-establish their previous lives, or developing new lives and societal involvements (e.g., problems returning to work) (WHO, 2001). Stroke has a marked impact on a stroke patient's ability to return to work. The systematic review conducted by Wolfe, (2001) revealed that stroke in young adults has also been shown to take its toll on employment, there being a significant reduction of employment associated with an unfavourable functional state, and also on the lives of family and community members. Wolfe (2001) found that inability to communicate effectively was the major problem and restriction for stroke patients returning to their previous working lives, This was seen as the one of the major reasons and psychological impairments afflicting people relatively frequently after stroke.

A study conducted in the UK by Kathryn et al. (2008) to explore the challenges faced by post stroke patients returning to work, found that patients with very severe deficits are less likely to return to work, and the presence of disability was considered as a significant barrier to post stroke patients attempting to return to work. Both extrinsic and intrinsic factors, such as having a job to go back to, beliefs about and attitudes towards work, the job market, and the benefits system, all play an important role part in this process.

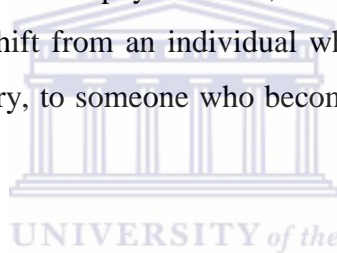
A study conducted by Teasell et al. (2005) found that, of the 64 patients employed outside the home or studying at the time of their stroke, only 13 (20.3%) were able to return to work within 3 months of discharge, and only 9.4% of those working full-time were able to return to full-time employment (Teasall et al., 2005). In a study conducted in Sweden, Vestling et al. (2003) identified 158 consecutive admissions who were returning to work over a four-year period.

People were recruited at 6 months post stroke if they were of working age, and had been working at the time of stroke onset. A total of 120 patients agreed to take part in the study. Demographic information and functional abilities at the time of admission were collected from the medical records of each participant who received questionnaires requesting information on their working situation prior to the stroke and information on their current position regarding work and were asked to complete the self-administered questionnaire. Of the 120 patients studied, 41% returned to after discharge work. The mean time for returning to work after discharge was approximately one year, and of those who returned, just over half had significantly reduced working hours. Not surprisingly, return to work was associated with higher levels of subjective wellbeing. Of note was that 17% of the participants who attempted to return to work failed to do so. The reasons for this failure are unclear, but it is possible that those groups who successfully returned to work, even with reduced hours, were those who, with appropriate support and rehabilitation, were able to successfully return to work (Vestling et al., 2003). In the same study, Vestling also identified factors that predicted return to work. Using multiple logistic regression analysis, he and his co-researchers found those who could walk independently, had a non-manual job, and had preserved cognition abilities were more likely to return to work. Participants in the study expressed a sense of abandonment by the medical system, associated with a concern that they had exhausted the limits of available help and were not yet 'back to normal'. The impact of physical disabilities on day-to-day tasks, on the ability to engage in previously enjoyed activities, and on their roles within family was a major challenge for post stroke patients. In order to address the factors that hinder stroke patients' return to work, they need specialist vocational rehabilitation services delivered by those who have an in-depth understanding of stroke and its effects. However, more research is needed to evaluate vocational rehabilitation aimed specifically at the needs of stroke patients (Kathryn et al., 2008).

Studies show many participants reporting a gradual realization of the extent of the changes they face as they attempt to resume their previous lifestyles (Hassan, 2009). Having struggled to deal with the implications of stroke on day-to-day activities, the loss of future plans was particularly distressing for many participants. Plans to travel, to have children, to work in a chosen occupation, or for a particular retirement lifestyle, were disrupted by the stroke, which in turn had a negative impact on the self-concept of stroke patients (Hassan, 2009).

Loss of ability to drive a car has also been identified as a challenge for post stroke patients (WHO, 2005). For many participants in studies, regaining their driver's licenses was foremost in their minds even prior to hospital discharge. Driving was seen as representative of independence, a way to regain self-esteem, a means to access social support and to facilitate participation in valued activities. Participants spoke about their ability to resume daily activities with deep emotion. Although a participant was found to be well supported by family and friends who were key resources for recovery, these relationships were often tested as a result of stroke (WHO, 2005).

One of the consequences for stroke patients of participation restrictions that result in difficulties in returning to previous work is the economic burden imposed on the post stroke patients as they are no longer able to earn an income. If he/she was the breadwinner, the whole family suffer economically as they will not be able to pay for food, rental, and medical and other bills. At national level, stroke signifies a shift from an individual who was productive, and contributed towards the economy of the country, to someone who becomes dependent on the state. (Palmar & Glass, 2004).



The challenges faced at discharge from hospital to home following a stroke

Leaving the hospital after a stroke can be a frightening and difficult experience (WHO, 2005). Although going home has been seen as an important part of their recovery, people do not feel prepared for continuing their recovery and life at home, and have many unanswered questions. For instance, Wasserman et al. (2009) found that this is often the time when stroke survivors suffer their greatest feelings of abandonment as well as facing a diversity of on-going problems as they adapt to the long-term impact of the stroke. Thus returning home after a stroke can be a daunting challenge (Urimbeshi, 2009) and it may be hard for stroke survivors to be able to use those skills learned in rehabilitation in hospital in a new environment (Rhoda, 2003). Caregivers of stroke survivors now have many new responsibilities and less time to enjoy their own activities (Hassan, 2009) due to the challenges of adjusting to stroke, thus causing stress for both caregiver and stroke patient (Khondowe, 2006; Solomon, 2004). This is highlighted by Burton (2000), who found that the kinds and extent of the challenges experienced by stroke patients may be linked to different stages of the disease (Wasserman et al., 2009). However, dealing with the

discrepancies between the rehabilitation outcomes and recovery expectations is critical for both stroke patient and caregiver following a stroke survivor's discharge from hospital to home. This is because the period following discharge from hospital, or from in-patient rehabilitation, is the most challenging for almost all stroke patients (Urimbeshi, 2009). However, ChN'g et al. (2008) argued that these difficulties could be associated with a discharge of a stroke patient without an accurate assessment of his or her domestic environment, or of the establishment of networks to meet critical needs such as personal care and home modifications (Burton, 2000). Ellis-Hill et al. (2009) conducted semi-structured interviews of 20 stroke patients one month after their being discharged from hospital following a stroke, to investigate what constitutes a 'poor' or a 'good' experience in relation to the transition from hospital to home following a stroke. Participants described models of recovery, discharge being seen as difficult because stroke patients did not feel supported, or they felt they were in the dark regarding the plans for their recovery. Participants also considered the discharge process to be successful if they felt supported and informed about what was happening and likely to happen to them (Ellis-Hill et al., 2009).

A study conducted in Sweden by Olofsson, Anderson and Carberg (2005) whose aim was to explore the experiences of nine stroke patients discharged from a stroke centre in a hospital in Sweden, found that, although going home was seen as an important part of their recovery, stroke patients did not feel adequately prepared for continuing their recovery and life at home, and had many unanswered questions concerning this. Tyson & Turner (2000) focused on the discharge of over 90 stroke patients, and also found that discharge from hospital was perceived by stroke survivors to be troublesome. They considered the main shortcomings to be poor communication, limited contact, and the narrow focus of the rehabilitation on the assessment and provision of basic home care and the activities of daily living (ADL) with very little useful information or support. Langhorne (2007) found that the discharge process following stroke has been explored by researchers to see if it can be made more effective by developing several new services such as early hospital supported discharge, outreach services, and intensification of support

Kirkevold et al. (2002) explored the challenges faced by stroke survivors during the different stages of the stroke using interviews. The authors found that at stroke onset, individuals were challenged by the fact that they were relinquishing control to medical personnel, and viewed

stroke as an “intermission” in life. Once in active rehabilitation, patients became focused on evaluating their progress as they struggled to make sense of the stroke and its impact.

Young and Forster (2007) found that discharge to home, and cessation of rehabilitation, was one of the key milestones in a stroke survivor’s path to recovery and ‘normal’ life. In the longer term, adjustment to a new ‘normal’ self, and dealing with discrepancies between rehabilitation outcomes and recovery expectations, were highlighted as critical issues (American Heart Association, 2001). Hackett et al. (2007) did a survey of 56 post stroke patients and found that 60% of the participants showed a good prognosis and the other 40% showed poor prognosis and were dependent on others in their basic day-to-day activities such as dressing, transferring to shower and walking outside.

2.5 ENVIRONMENTAL CHALLENGES

Environmental factors constitute the physical, social and attitudinal environment in which people live and conduct their lives and which impact on their functioning (WHO, 2001). Caban (2007) found that after stroke patients have been discharged from the hospital, they tend to face a range of different environmental challenges including attitude challenges. One example of an attitudinal challenge is the interpretation of stroke disability as a punishment from God (Urimbeshi, 2011).

Physical barriers

Physical barriers could refer to the obstacles that post stroke patients might face in the environment such as ground level and gradient, which could affect balance. Mountains, steep ground and stairs are the most common physical environmental barriers. For example, in a study conducted by Vicent et al. (2007), stroke survivors considered that the physical geography and barriers to be the most challenging physical barriers. It is clear from the literature that physical factors can be either facilitators or barriers to the post-stroke patients. From example, a study conducted by Hammel et al. (2006) showed that negotiating stairs and narrow doorways could be major barriers. The provision of rails along staircases are environmental facilitators assisting stroke patients to climb stairs.

Social challenges

Social factors include the relationships a person has with people in her or his environment, and the emotional support, nurturing, and general assistance that people and family members give to their loved ones in their homes, work place or schools in the course of their daily activities. The social isolation experienced by stroke patients may be related to poor outcome as a result of stress, depression, poor treatment compliance and decreased participation in healthy activities. From the literature it is evident that social support from friends, and a strong social network, whether the support is emotional or practical, have a positive influence on a stroke patient's functional and psychological recovery (Ekstam et al., 2007). Kersten et al. (2009) also found that involvement of stroke patients with the community in education and rehabilitation may serve to allay the fear and ignorance that negatively affect the stroke survivor's ability to return to work and to participate in social activity. In fact, the failure to mobilize adequate support in the community can negate the best efforts and results of stroke rehabilitation (Borkan et al., 2011).

Attitudinal barriers

WHO (2001) described these as attitudes that are observable in communities. Attitudes can include the norms, values, practices and beliefs of people in a group or community and may influence an individual's behaviour and social life. Other major examples of attitudes, and behaviours emanating from them, include neglect, stigmatization, stereotyping and marginalization. For example, a study conducted by Hare et al. (2006) revealed that stigmatization has manifested itself in the form of anger and other forms of negative feeling towards stroke patients. More than a decade ago, Kim et al. (1996) described how people expressed their negative attitudes towards stroke patients. For example, a study conducted by David and Madden (2008) described a number of participants admitting that they tend not to tell anyone about their stroke, except for family members or close friends, because of their fear of people stigmatizing or stereotyping them.

2.6 RISK FACTORS FOR STROKE

This section discusses the risk factors for stroke and is underpinned by the relevant literature. Risk factors for stroke can be categorized under two sub-headings: Modifiable Risk Factors and Non-modifiable Risk Factors.

Non-modifiable risk factors

Age, gender, race, as well as previous Transient Ischemic Attacks (TIAs) have been observed as Non-modifiable risk factors, factors which cannot be modified (Garbrunski et al., 2008).

Age, as a non-modifiable risk factor was found to be a substantial frequent cause of stroke during the first year of post-stroke experience (Salter et al., 2008). It is the foremost risk factor for stroke, and for every 10 years after the age of 55 years, the increasing rate of stroke has been thought to pose more risk for both men and women (Wolfe, 2000).

The literature confirms that an increase in age is one of the factors contributing to the increase in the mortality rate of stroke (American Heart Association, 2001). The Oxford Community Stroke Project found the risk for stroke to be 15 times greater for stroke survivors than for those who have never had a stroke (Bruno, 2000). However, in the literature it is evident that TIA has also been found to be a notable risk factor for stroke (Hankey, 2003). According to the study by (Ebell, 2006), five to 10 per cent of patients presenting with TIA will have a stroke within the following week. Pang & Miller (2007) found an increased risk for men whose mothers have died of stroke, and a family history of stroke could be one predictor for women. In the Framingham study, an offspring analysis revealed that both paternal and maternal histories were associated with an increased risk of stroke. On the other hand, some race-related risk for stroke may be connected to factors other than race, such as environmental factors, or inherited risk factors. Salter et al, (2008), indicated that the rate ratio of mortality rates for males decreased from 2.3 to 1.9 when adjusted for six well-established risk factors, and decreased from 1.9 to 1.4 for females when further adjusted for family income).

Modifiable risk factors

According to the study conducted by (Bamford, Sandercock & Warlow, 2010), modifiable risk factors for stroke include hypertension, diabetes, elevated blood lipid level, physical inactivity, smoking, alcohol abuse, and cardiac diseases.

Mlay (2009) found that hypertension has negative consequences for an individual's life, but that it can be prevented if individuals are made aware of it. The majority of strokes occurring in young and middle-aged people are due to hypertension. Hypertension is highly prevalent among this age group and is often undetected or poorly controlled. It has been considered to be the major causative for stroke overall (Walker et al., 2000). For patients between 40 and 70 years of age, each increment of 20mmHg in Systolic Blood Pressure, or 10mmHg in Diastolic Blood Pressure, doubles the risk of stroke (Barbara, 2004). Among the studies conducted amongst the Tanzania population, hypertension was found to be the main and most likely reported predisposing risk factor for stroke (Johanson, 2000; Swann, McLarty, Kitange et al., 2008). The study conducted by Walker et al. (2003) indicated that less than 20% of hypertensive patients in urban and rural Tanzania had their hypertension under control. Hypertension was found in 6.6% of the men and in 7.5% of the women in the Kilimanjaro region, similarly, 3.3% and 4.7% in Morogoro, and 2.6% and 1.8% in the Mara regions respectively. A greater proportion of patients who were previously diagnosed with hypertension died from stroke in the Hai District when compared to the proportions in Dar es Salaam and Morogoro (Walker et al., 2000). One of the reasons for the high death rates resulting from stroke in Tanzania is the lack of patient participation in the management of the disease (Swai et al., 2006). Tesha (2006) argued that, in order to reduce further predisposing risk factors and strengthen the aim of preventing stroke disability and death, patients' involvement in health education programmes needs to be encouraged and people need to be educated about the risk factors of stroke.

Diabetes is an independent modifiable risk factor for stroke (Kolowole, 2006) and has been associated with high risk for stroke and other cardiovascular diseases (Graham et al., 2008). Hyperglycaemia $>6.9\text{mmol/L}$, or hypoglycaemia $<6\text{mmol/L}$ have been shown to be present in 47-68% of stroke patients. Overall, individuals with diabetes have a two- to threefold increased risk of stroke and other cardiovascular diseases, compared with individuals without diabetes (Green

et al., 2009). The number of adults with diabetes worldwide reached 171million in 2000, and this figure is expected more than double by 2030 as a result of aging and changes in lifestyle (Green et al., 2009). The data for parts of Asia and Africa are of particular concern. It is estimated that in 2025, the number of adults with diabetes in these regions will rise by almost 20% (Gregson et al., 2000).

The study conducted in Nigeria by Kolowole (2006) found that approximately 80% of all diabetes-associated mortalities, and most hospitalizations, can be accredited to stroke and other cardiovascular complications. Diabetes mellitus has also been shown to be associated with increased mortality and with reduced functional outcome after stroke (Bonow & Gheorghiaide, 2004).

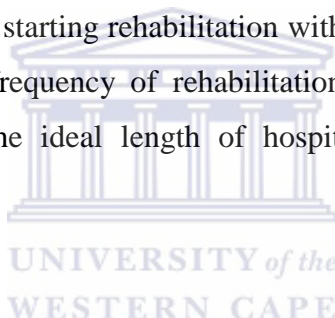
Sonoda et al. (2004) found heavy alcohol intake to be another important cause of stroke. For example, a study conducted by the American Heart Association (2001) indicated that heavy alcohol intake can result in higher risk of stroke. Green et al. (2009) emphasized that people who are used to drinking one or two glasses of alcohol per day had the least risk for ischemic stroke, while individuals who drank more than five glasses of alcohol per day had an increased risk for stroke compared to people who did not consume alcohol at all.

Smoking doubles the risk of stroke and increases both haemorrhagic and ischemic stroke risk as well as a wide variety of other health problems (Lemogoum, Degaute, Bovet, Ally & Sandarac, 2005). The number of smokers worldwide is currently estimated to be 1.3 billion, of whom 82% live in developing countries (Taylor et al., 2007). Mays and Erickson (1995) reported that during the 20th century 100 million people died worldwide as a result of tobacco-related diseases. Smoking is particularly harmful when combined with other health risks, including hypertension and diabetes. In 2005, Lemogoum et al. (2005) found that while tobacco-use was decreasing in developed countries due to strong tobacco control programmes, the opposite trend was being observed in many developing countries, and the current overall prevalence of tobacco at the time was 36% among men and 11% among women in Sub-Saharan Africa. The most common disease related to smoking is arteriosclerotic disease, and arterial thrombosis, both of which diseases often lead to blood clots and the obstruction of blood vessels in the brain. The study done by the Canadian Heart and Stroke Association revealed that 80% of strokes are caused by blood clots in

the brain. It also found that smoking contributes to more than 37,000 deaths a year in Canada, of which almost 11,000 are heart disease and stroke-related and that twenty nine per cent of all smoking-related deaths are heart disease and stroke-related (Canadian Heart and Stroke Association, 2010).

2.7 REHABILITATION OF STROKE PATIENTS

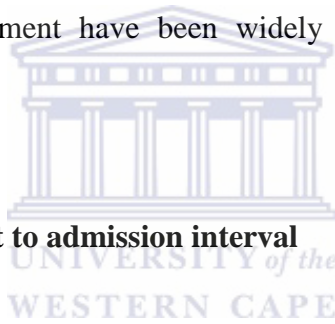
This section describes rehabilitation as an important and valuable component of a stroke patient's recovery. The different types and processes of rehabilitation for stroke patients are discussed in relation to the literature reviewed. The chapter is organized under five sub-headings: a definition of rehabilitation, and significance of rehabilitation for the stroke patient and stroke on-set admission; the different types of therapy used in rehabilitation, including NDT Versus Brunntroms; the optimum time for starting rehabilitation with stroke patients, a discussion of the effect on stroke patients of the frequency of rehabilitation post-admission. The section will conclude with a discussion of the ideal length of hospital stay for a stroke patient in a rehabilitation setting.



Definition and significance of rehabilitation for post-stroke patients

Rehabilitation has been defined as the combined and coordinated use of medical, social, educational, and vocational measures for training or re-training individuals disabled by disease or injury to the highest possible level of functional ability, social integration, better quality of life, and self-actualization, consistent with physiological and environmental limitations (Hellander, 1999). The term rehabilitation can also refer to “all measures aimed at reducing the impact of disability for an individual, and enabling him or her to achieve independence, as well as social integration, a better quality of life and self-actualization” (Hellander, 1999). Stroke rehabilitation addresses the specific effects of stroke on a person in order to decrease her or his participation restrictions, and in the process lessen the burden on the caregiver (Khondowe, 2006; Department of Health, 2007).

Exercise is an essential element of recovery after stroke. Although, in the UK stroke survivors are supported through rehabilitation regimes provided by physiotherapists within the National Health Services Rehabilitation, due to lack of resources, these often come to an end long before the person with stroke wants to stop therapy (Wiles et al., 2004). WHO (2005) reported that people with stroke view physiotherapy on its own as an effective way to bring about recovery post-stroke. . Physiotherapy provides stroke patients with a sense of well-being, self-worth and control for the duration of the time they are receiving it. However, physiotherapy should be seen in the context of a stroke patient's being discharged from the hospital without an assessment of the patient's new environment having been made. The home environment after hospital is seen as a daunting challenge to both the stroke patient and the caregivers in terms of further recovery. As a result, stroke patients frequently want more physiotherapy, viewing this as the only route to further recovery. In this context, discharge from hospital is often seen to be premature and feelings of distress and abandonment have been widely reported by patients at discharge (Demain et al., 2008).



The duration time of stroke onset to admission interval

Fogelholm (1996) emphasises the importance of early hospital admission of stroke patients with acute stroke and this is being increasingly recognized because of several on-going clinical trials of new and promising drugs with narrow therapeutic time windows. Recruitment of stroke patients for drug trial studies is compromised by delays in arrival at hospital of stroke patients after the onset of stroke. Until now, only a few studies have addressed the factors that determine the time interval from stroke onset to hospital admission (Fogelholm, 1996). The American Heart Association (2001) indicated that stroke on-set post admission delay is ambiguous and comparisons among studies are hampered by differences in patient samples, timing of assessments, the criteria by which outcomes are measured, and by the measuring instruments used. According to the study conducted by Fogelholm (1996) among 363 stroke patients admitted to the Central Hospital, to determine the factors delaying hospital admission after acute stroke, the referral pattern was the most important factor associated with the time delay in reaching the hospital. The interval delay was 2 hours for stroke patients brought directly to the

Central Hospital, 8 hours if a physician at the local health centre was consulted, and 47 hours if the patient was first admitted to the health centre for observation. Other factors associated with these findings were ischemic stroke and stroke onset-admission in the evening or the night during the weekend (Fogelholm, 2006). In addition, it was concluded that the majority of stroke patients who are applicants for acute stroke trials arrive at the hospital after prolonged delays for multiple reasons and that public and medical personnel education could result in significant reduction in these delays.

Thus, there are many reasons for focusing on delays between stroke on-set and admission in rural areas such as Haydom, one very important factor being the referral pattern from the local health centre to referral hospital. Lack of reliable transport could also cause pre-hospitalization delays for stroke patients. Many authors have advised that the time interval between stroke and hospital admission be as short as possible, less than 6 hours. The most common causes of delay were stroke occurring during the night, living alone, age over 70 years, admission through a bed allocation, stroke occurring at home, and first medical contact with the patients' personal physician. Thus, public education about warning signs and symptoms, and early medical attention are the key factors for success in treating and rehabilitating stroke victims. The American Heart Association (2001) concluded that, despite the fact that we presently do not have effective treatment for acute stroke in all hospitals; an early admission policy must be promoted to recruit patients into trials of promising new treatment. In addition, hospitals must be prepared for the day when they have an effective treatment in place.

Effective treatment and rehabilitation of stroke patients can be accomplished by fully informing the public and medical personal of the symptoms and signs of stroke. Stroke patients must also be informed of these and of the importance of seeking a hospital with high-quality stroke diagnosis and treatment facilities. Stroke is an emergency complications condition which requires immediate hospital presentation. Immediately after arrival at the hospital, the stroke patient should be sent for a CT scan, after which the appropriate treatment can begin in the hospital (Ottawa Charter for Health Promotion, 2000; Fogelholm, 1996).

Starting time of rehabilitation

Ideally, rehabilitation begins in the early post stroke stages, as soon as the patient is medically stable, and involves evaluation and intervention by a rehabilitation team which includes a doctor, nursing staff, physiotherapists, occupational therapists, social workers and speech and language therapists. Early intervention and great intensity of treatment are associated with better outcomes (Teasell & Kalra, 2005). Much of the literature sees a definite positive relationship between the early start of rehabilitation and a good outcome post-stroke. In a study done stroke rehabilitation in Abidjan in Ivory Cost researchers found the average delay in beginning post-acute rehabilitation was two months after the stroke (Datie, Nandjui, Maniou, Alloh & Boni, 2006). Another study conducted in Turkey showed the mean onset-admission interval was 62.9 days (Yavuzer et al., 2008). Walker et al. (2003) found that in Tanzania, lack of rehabilitation for stroke patients to be a serious issue of concern. However, this situation could also be associated with the small number of qualified physiotherapy and occupational therapists in that country, the involvement of whom in the rehabilitation process is of huge importance for an early and noticeable improvement of post-stroke patients. Lack of resources could also be a major concern for those few available rehabilitation professionals at rehabilitation centres. Thus, for effective and efficient stroke patient rehabilitation the rehabilitation setting requires sufficient qualified staff and adequate resources.

Length of stay in rehabilitation (LOS)

The length of a stroke patient's stay in hospital is the main contributor to direct stroke care cost (WHO, 2005). Some of the literature found that the cost of rehabilitation is important in determining the factors which extend stroke patients' length of stay (LOS) in rehabilitation hospitals, and in identifying the focus areas of cost-control strategies. For example, a study conducted in Singapore by Saxena, Yong and Fong (2007) found that the LOS of post-stroke patients admitted in two community hospitals offering rehabilitation was 34.4, (SD= 18.4). The significant variables positively associated with LOS were medical complications that generated additional physician evaluation, a change in medication, or additional medical interventions, from the time of admission of stroke patients to the community hospitals until their discharge,

were recorded. Medical complications such as post-stroke dysphasia, urinary incontinence, aspiration pneumonia, and seizures before admission into rehabilitation hospitals were not associated with LOS. However, medical complications occurring during in-patient rehabilitation were found to be significant predictors of increased LOS. The outcome variables measured were length of stay and cost stay (Saxena et al., 2007).

In this context, Yavuzer et al. (2008) revealed that the post-rehabilitation process begins after an average delay of two months after the stroke. It was also observed that the shorter LOS in hospital in developed countries is a consequence of early discharge supported rehabilitation where stroke patients after being discharged, receive most of their rehabilitation at home. Wasserman et al. (2009) argue that stroke patients stay in hospital can be reduced when community resources and infrastructure are efficiently organized, and that this is as important in terms of the severity of the stroke and the extent of the patient's recovery. Moreover, successful discharge and rehabilitation depends on an accurate assessment of the domestic environment as well as on the establishment of networks to meet the stroke patient's critical needs, such as personal care, home modifications, and carer respite (Disler & Pollack, 2002).

A retrospective analysis conducted by Graham et al. (2008) on younger stroke patients indicated that 80% of the stroke patients under study were able to return home after an average LOS of 43 days. At discharge 85% of the participants were ambulatory and 56% required no help in daily living activities. They also found that severity of weakness on admission, long onset-admission intervals, the presence of severe perceptual or cognitive dysfunction, or a hemianopia in addition to a motor deficit, were related to unfavourable outcome and increased LOS. In addition, many patients with unfavourable prognostic signs made significant improvements after admission and were subsequently discharged. Thus, even those with poor prognostic signs can achieve enough functional improvements to manage at home after a relative short hospitalization period (Graham et al., 2008).

Therefore, one can conclude that medical complications during the hospital stay are reversible key determinants of increased LOS of post-stroke patients receiving rehabilitation. Effective prevention strategies, early detection and treatment of medical complications during stroke rehabilitation are crucial to successful discharge and functioning in a domestic environment.

Frequency of rehabilitation

The literature suggests that the frequency of rehabilitation of stroke patients is lower in developing countries than in developed countries (Saxena et al., 2007). According to the comparative studies done by Teasell & Kalra, (2005), and by Sonoda et al. (2004), there is clear evidence that a higher frequency of medical rehabilitation therapy improves functional outcomes for stroke patients. The study conducted in the US by Jette et al. (2005) compared the results of rehabilitation in stroke patients admitted to conventional stroke rehabilitation program five days per week and those of patients admitted to a full-time integrated treatment (FIT) program seven days per week. Both groups had similar functional independence measure (FIM) scores and they nearly double the FIM efficient scores ($p < 0.01$). This US study supports the findings of other studies done in developed countries which show that stroke patients who receive physical rehabilitation in the form of physiotherapy on average three sessions per two days show a faster rate of improvement, and get to go home earlier than the ones who have a lower frequency of rehabilitation treatments. In A study done in Abidjan in Ivory Coast also showed the mean frequency of stroke rehabilitation to be three times a week, which is the average of one session per two days (Datie et al., 2006). In Tanzania, limited information about frequency of rehabilitation is available. The study conducted by Walker et al. (2003) in Tanzania emphasized that post stroke patients with disability require frequent of rehabilitation and at the earliest possible stage, as soon as the medical investigations have been done and the patient's condition stable. However, the authors advised that rehabilitation done three or four times per day could increase functional outcome, and that the outcome could also be influenced by the availability and quality of human resources, such as the number of therapists, doctors and nurses. The researchers suggested that the therapy which focuses on the important personal activities of daily living after stroke can improve the performance of the stroke patient post discharge, and reduce the risk of a deterioration of these abilities.

Different types of therapy used in stroke rehabilitation

This section describes and discusses the different types of therapy used in stroke rehabilitation found in the literature. These include the Proprioceptive Neuromuscular Facilitation Test (PNF), Neuro Development Techniques (NDT), Bobath/Brunnstrom, and various strengthening tests.

PNF refers to the motor learning approach used in neuro motor development training to improve motor function and facilitate maximum muscular contraction. It has been used to increase strength, flexibility, coordination, and functional mobility in stroke patients. Adler et al. (2008) found that the main goal of PNF is to facilitate the patient in stretches as well as diagonals and the rotational exercise patterns used to improve ADLs (Activities of Daily Living), functional mobility, and athletic performance.

The study conducted by Deans et al. (2010) aimed to examine whether two different physiotherapy regimes resulted in any differences in outcome in rehabilitation after acute stroke. The study was a double-blind study of patients with acute first-ever stroke. Sixty-one patients were consecutively included, block randomized into two groups, and stratified according to gender and hemiplegic site. Group 1 (33 patients) and group 2 (28 patients) had physiotherapy following the Motor Relearning Programme (MRP) and Bobath, respectively. The supplemental treatment did not differ between the two groups.

The main outcome measures used were the Motor Assessment Scale (MAS), the Sjødring Motor Evaluation Scale (SMES), the Barthel ADL Index, and the Nottingham Health Profile (NHP). The parameters registered were length of stay in the hospital, use of assistive devices for mobility, and the patient's accommodation after discharge from the hospital.

The study found that patients treated according to MRP stayed fewer days in hospital than those treated according to Bobath (mean 21 days versus 34 days, $p = 0.008$). Both groups improved in MAS and SMES, but the improvement rate in motor function was significantly higher in the MRP group. The two groups improved in Barthel ADL Index without significant differences between the groups. However, women treated with the Motor Re-learning Program improved more in ADL than those women treated by Bobath. There were no differences between the groups in the life quality test use of assistive devices or accommodation after discharge from the hospital.

Evidence from other literature revealed that no substantial advantages could be attributed to any one of these therapeutic approaches. For instance, a study conducted by Dickstein (2006) compared the efficacy of different adult stroke rehabilitation techniques for 131 stroke patients (n=131): conventional treatment exercise (57 cases), PNF techniques (36 survivors), Bobath NDT techniques (38 survivors). The findings revealed that that no substantial advantages could be attributed to any one of these therapeutic approaches (Dickstein, 2006).

Neuro-development Therapy Techniques (NDT)

Neurodevelopment techniques focus on analysing and treating posture and movement dysfunction and are intended to lead to improved functional activity in stroke patients (Ada et al., 2010). Despite the popularity of this treatment, there is strong evidence to indicate that NDT therapy is not as effective when used on its own as it would be when combined with other treatments. The findings of the randomized control trials (RCTs) administered by Ada et al. (2010) indicated that individuals in the treatment groups demonstrated improvements in walking function. An earlier study done by van Vliet et al. (2003) found that in RCTs comparing limitation in walking, using Bobath-based/neuro-developmental techniques treatment with motor learning techniques comparisons at baseline and 1, 3, and 6 months after stroke, patients demonstrated marked improvement in both treatment groups from baseline, but there were no significant group differences on the Rivemead Motor Assessment leg and trunk, 6-minute walk test, or motor assessment scale (van Vliet et al., 2003). Much of the literature confirmed that the combination of different therapy techniques used, rather than the use of a single therapy, showed marked progress in the treatment of stroke, leading one to conclude that no therapy is superior to another. The researcher's therefore envisages that the combination of different therapeutic techniques would improve the outcomes of stroke treatment and rehabilitation if employed in rural settings such as Haydom.

Screening test for muscle strength

Muscle weakness in stroke patients is generally mild and transitory, and may be the result of musculoskeletal, neurological disorders or problems with infection. Therefore, an evaluation of the patient is necessary before treatment can take place (Hicks, 2007). Although it is possible to assess muscle strengthening throughout the full range of motion for each muscle or group of muscles, there are several simple screening tests to detect muscle or reflex abnormalities. The criteria for grading and recording muscle strengthening range from grade 1 up to 5. The reflex test (hyper or hyporexia), the spasticity for muscles test (hyper or hypotonicity), and tests such as the clonus and babinski test for neurological disorders (Barker, & Cott, 2006).

2.8 Methodological considerations

Mixed methods research approach

According to Creswell, (2003) a mixed research design is a general type of research that includes quantitative and qualitative research data collection. It has multiple forms of data collection and procedures, aiming to provide rich and highly accurate data (Creswell, 2003). Tashakkori & Teddlle (2003) describe a mixed method design as a design in which there are two relatively independent phases, one with quantitative question(s), data collection and analysis techniques, and another one with qualitative question(s), and data collection and analysis techniques. According to Porta et al. (2008), retrospective descriptive studies are the descriptive or observational case-control studies that focus on conditions in the past that might have caused subjects to become cases rather than controls. A common case-control design in the exercise science literature is the comparison of the behavioural and psychological characteristics and one usually looks for the outcomes of the exposure. The retrospective study approach uses existing sources, such as medical records, to obtain data (Hess, 2004).

Qualitative and quantitative research used together produce more complete knowledge necessary to inform theory and practice. The mixed methods design can provide stronger evidence for a conclusion through convergence and corroboration of findings, in the form of triangulation (Ali-

Jishi, 2000). Methodological purists however contend that one should always work with either a qualitative or a quantitative paradigm. Some of the details of mixed research remain to be fully worked out by research methodologists (e.g. the problem of paradigm mixing, how to both quantitatively and qualitative analyse data, how to interpret conflicting results). However, the advantages of mixed method research design outnumber the disadvantages.

Data collection instruments

The study conducted by Urimbenshi (2009) demonstrated how data gathering sheet was used to collect information concerning the demographic characteristics of the participants, their medical characteristics, stroke onset-admission interval, length of hospital stay, and the process of physiotherapy for these stroke patients as captured in medical records. The data gathering sheet used to collect retrospective data in this study was developed by Urimbenshi (2009). Urimbenshi's (2009) data gathering tool found the inter-rater reliability coefficient to be between 0.84 and 0.94 for the different data gathering instrument.

The researcher used the data gathering instrument because no standardized instrument that met the specific needs of this study could be found. The questionnaire consisted of three sections, A, B, and C. Section A was used to capture the demographic data, which included age, gender, occupation, and marital status of the participants. Section B was used to capture the medical data, which included documented risk factors and clinical features of the participants. Section C was used to capture the rehabilitation data, which included stroke-onset admission intervals, length of hospital stay, and time of commencement of physiotherapy since admission.

2.9 SUMMARY OF THE CHAPTER

Stroke is a condition that can result in multiple impairments, activity limitation, participation restrictions, and environmental barriers. Furthermore, stroke can leave a 'normal' person requiring daily living care, and dependent on a caregiver as a result of the cessation of normal life. Availability on profile of assessment information, and information and recommendations regarding the specific challenges facing stroke patients on discharge, is of crucial importance in the preparation of prevention strategies for risk factors affecting stroke survivors. From the literature review, it is clear that the availability of effective and efficient rehabilitation could reduce the impact of stroke and disability on the stroke survivor. The information reviewed in the literature in this chapter will be used to develop the profiles and explore the challenges of the all stroke patients at Haydom Hospital as well as those participating in the study,

The overview of population-based studies of incidence, prevalence, and mortality and case-fatality in stroke was based on studies which included those done on first stroke in an individual's lifetime, and prevalence of stroke computed by age, sex, and stroke type. The literature showed that worldwide the burden of stroke is high and is likely to increase in future decades as a result of demographic and epidemiological transitions in populations. In Tanzania, limited information is available on the epidemiological profile of stroke survivors requiring rehabilitation. In addition, epidemiological studies in developing countries are required mostly to reduce the impact of stroke. Many studies done on the rehabilitation of stroke patients have found that intensive rehabilitation of stroke patients needs to be adopted over a long period of time as an effective strategy for the optimum rehabilitation of stroke survivors. Educational programme that inform communities about the risk factors, as well as the signs and symptoms of stroke, are strongly recommended in much of the recent stroke rehabilitation literature. The discharge from hospital experience for stroke survivors could be improved by healthcare professionals' understanding of this, and exploring programmes addressing the early detection and treatment of signs of stroke as well as the risk factors. In addition, in order to reduce stroke patients' sense of isolation they need to be fully informed, and their experiences shared and validated. All of these recommendations have led to the researcher's proposal to establish education and rehabilitation programmes amongst the Haydom communities.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter focuses on the methods used to collect data in this study. It begins with a description of the study setting, and goes on to describe the research design used in the study, the participants involved (population and sample), the instruments and procedures for data collection, and the methods used for data analysis. The chapter concludes with the ethical considerations pertaining to the study.

3.2 RESEARCH STUDY SETTING

The study was conducted at Haydom Lutheran Hospital, a referral hospital in the Mbulu District in the Manyara Region, in the Northern Province of Tanzania. The hospital has a 450 bed capacity and serves about 600,000 people who reside mainly in the Mbulu, Hanang and Babati Districts in the Manyara region, and the Iramba district in the Singida region. The hospital consists of several departments, including an intensive care unit (ICU), a surgical department, a maternity ward, a medical department, a paediatric ward, a pharmacy, physiotherapy, orthopaedics, a radiology department (X-ray, CT-scan and ultrasound machine), a dentistry unit, an ophthalmology department, a laboratory, a medical records department, and a nursing school (diploma college). The hospital also has primary health care outreach programmes specifically for pregnant mothers and for children less than five years old from the neighbouring communities.

The hospital has a staff of 450: 25 doctors, 280 nurses, four physiotherapists and others from the various departments. The doctors, physicians, nurses, and physiotherapists are involved in stroke rehabilitation. The physiotherapy departments manage stroke cases in addition to hospitalized patients from the surgery, maternity, paediatric and orthopaedic departments. Haydom Lutheran Hospital admits an average of 25 stroke patients per month who are admitted either into the Intensive Care Unit or the medical department. During their hospital stay, their rehabilitation is provided only by the physiotherapy department. The therapy is aimed at improving patients'

functional status and the individual's treatment. There is neither an outreach programme nor a community-based rehabilitation service provided to stroke patients discharged from the hospital. Patients only get institution-based rehabilitation services as inpatients.

3.3 STUDY DESIGN

A mixed-model research method design was used in this study. This method consists of two relatively independent parts, or phases, one involving quantitative data collection using a questionnaire, and quantitative analysis techniques, and the other involving qualitative data collections by means of in depth interviews, and qualitative analysis techniques (Urimbenshi, 2009).

The quantitative part of the study used a retrospective descriptive study model and involved a review of the medical records of stroke patients admitted at Haydom Lutheran Hospital from 1st of January 2004 to 31st December 2010. The data captured from the medical records focused on demographic details, medical characteristics and history, and rehabilitation data, which included, the stroke onset-admission interval, the length of hospital stay (LOS), and details of the process of physiotherapy given to these stroke patients.

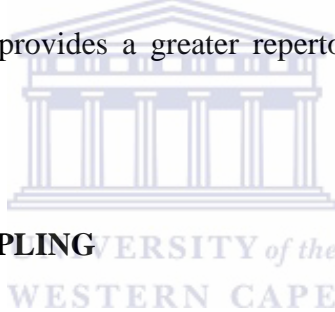
A qualitative interpretation approach was used to collect data on the specific challenges experienced by stroke patients living in Haydom and to explore their daily realities, seeking to understand they make sense of their lives following a distressing event such as a stroke (Creswell, 2003). The approach would also 'give a voice' to the person being studied, and present the subject's own view of his or her world (Khan & Hassan, 2009). The stroke patients were thus provided with an opportunity to describe their experiences of, and to express their feelings about, living through a stroke post discharge.

Motivation for the use of the qualitative method

The current study is intended to explore the specific challenges of stroke patients concerning activity limitations and participation restrictions. The qualitative method allows an analysis of the various challenges which cause or motivate stroke patients to behave in particular ways (Borkan, 2011). Many authors argue that using a mixed method approach can allow for the

weaknesses and limitations of each approach to be neutralized, while building on their strengths in providing stronger and more accurate inferences (Creswell, 2003; Bryer, 2006).

The retrospective descriptive quantitative approach allows researchers to extract stroke patient's TREATMENT lessons from a reporting system by using past medical records, seeking out information about the patients' demographic backgrounds, medical characteristics, and rehabilitation data. As has been described, the quantitative and qualitative analyses complement each other, the former providing breadth, and the latter depth. The study conducted by Saeki, et al. (2000) found that a combination of research approaches useful in exploring the complex nature of phenomena and the range perspectives required. More than a decade ago, Pope and Mays (1995) argued for a range of research methods in order to understand the complexities of modern stroke patients' health challenges. Clarke et al. (2005) argue that mixed method research helps to answer the research questions that cannot be answered by quantitative or qualitative methods used on their own, and provides a greater repertoire of tools to meet the aims and objectives of a study.



3.4 POPULATION AND SAMPLING

Study sample for the quantitative phase of the study

The study population for this phase consists of all those stroke patients admitted at Haydom Lutheran Hospital in Tanzania from 1st January 2004 to 31st December 2010, for which there available case records and whose details could be retrieved from medical records. Initial searching identified all the medical records for each year from 2004 up to 2010. At Haydom Hospital, records of patients for each a year were stored on a shelf making them easily accessible to the researcher. Furthermore, the hospital had a system called 'Care 2x' whereby the records of patients were computerized for the purpose of keeping the patient data. These were the records of patients who survived or died, who were discharged from the hospital between January 1st, 2004 and December 31st, 2010. In addition, the registration records for each year were available with the details of all the stroke patients admitted during that period. From these records, the researcher was able to identify all those patients who had had stroke during the period under study.

A total of 145 stroke patients' records were identified and retrieved following the initial search. Of these 17 stroke patients were excluded due to the values missing in less than 10% of the cases, excluded criteria or missing and incomplete data. The stroke patients as identified either by CT scans or clinical diagnosis, who had a history of congested cardiac failure (CCF), and those who had been diagnosed as HIV infected, were also included as well as those patients who could have had a vascular reason for their stroke.

Sample for the quantitative phase of the study

A convenient sample size of 128 stroke patients admitted to the hospital during the data collection period was used in the data analysis. These include both stroke survivors and those who died in hospital. Both medical and physiotherapy records were reviewed to ensure completeness of information and to minimize a 'missing clinical data' bias. Relevant data captured on a data capture sheet includes demographic and medical characteristics as well as the stroke onset-admission interval. In addition, the length of hospital stay, other diagnoses, and the process of physiotherapy were reviewed. The information regarding the physiotherapy process included the time of commencement of physiotherapy and the number of physiotherapy sessions stroke patients' received while admitted to hospital. According to Worster and Haines, (2004), a common method of sampling in the Medical records review is to select all the consecutive cases within a given time frame. This type of convenient sample is acceptable provided the period is long enough to include seasonal variations (Hale et al., 2007).

Sample for the qualitative phase

The procedure of selection of participants for this phase was mainly purposive the aim being to capture the views of patients who had a range of different characteristics. After the identification of stroke patients admitted to Haydom Hospital between January, 1st, 2004 and December 31st, 2010, a sub-sample of individuals from all patients for the qualitative population were selected from those who formed part of the sample for the quantitative study, in order to offer richer variations of the phenomenon under the study. The criterion for selection was that of being reachable, identified from a patient's medical folder. The characteristics considered for the purposive selection were the age of stroke patients, gender, marital status, occupation before

stroke, and chronicity of stroke (interval between date of onset to the date of data collection). To include participants of each characteristic, a sample of 10 participants were interviewed, although it was intended to include more if saturation was not achieved. (David & Madden, 2006).

Inclusion and exclusion criteria

Only patients with a definite diagnosis of stroke made by a medical doctor or physician or as indicated by the CT scan were included. Patients with neurological impairments as a result of other neurological conditions, such as meningitis, cerebral malaria, encephalitis, seizures, and brain tumour were excluded from the sample. For the qualitative study, patients with communication and cognitive problems were excluded. Participants who needed assistance with at least one activity of daily living, as determined by the researcher, were included.



3.5 QUANTITATIVE STUDY INSTRUMENT

A data gathering instrument (Appendix A) was used to collect information concerning; the demographic and medical characteristics, stroke onset-admission interval, length of hospital stay, and the process of physiotherapy for stroke patients admitted at Haydom Lutheran Hospital (HLH).

Questionnaire

The data gathering instrument used in this study was developed by Urimbenshi (2009), who conducted a study in Rwanda to determine the profile of stroke patients in that country. The reference according to the inter-rate reliability coefficient was between 0.84 and 0.94 for the different sections of the data gathering instruments (mean = 0.90) (Urimbenshi, 2009). This coefficient was found to be good. The data gathering instrument developed by Urimbenshi (2009) was used because no standardized instrument that meets the specific needs of this study could be found. The questionnaire consisted of sections A, B, and C. Section A was used to capture demographic data, which included age, gender, occupation, and marital status of the participants. Section B was used to capture medical data, which included documented risk factors and clinical features of the participants. Section C was to capture the rehabilitation data, which included stroke-onset admission intervals, length of hospital stay, time of commencement of physiotherapy since admission, and number of physiotherapy sessions.

DEVELOPMENT OF DATA GATHERING INSTRUMENT

A: Demographic Data

This section addresses the first objective of the current study and includes the following demographic information: age, gender, marital status, and occupation. These were originally developed from measurements by Snuijbergen (1995). Documented information on non-modifiable risk factors for stroke includes age, gender, marital status and employment status.

It is essential to detect non-modifiable risk factors for stroke, even if no measures can be taken to eliminate them, because their presence helps identify individuals at high risk, and thus justifies

the implementation of vigorous treatments to reduce modifiable risk factors (Wolfe, 2001). During the period under study, the medical officer documented this patient information on their admission to hospital.

(i) Age

Age is the single most important risk factor for stroke. For each 10 years after age 55, the stroke rate is more than doubled for men and women (Wolfe, 2001). From the literature, age has been found to be a definite risk factor for stroke incidence and mortality. The American Heart Association (2001) indicates that the risk of stroke incidence and mortality increases with increasing age. In addition, age was found to be associated with limited functional outcomes post stroke. Younger patients have better survival and long term clinical outcomes compared to adult (Musiccio et al., 2003). In the present study, the patient's age was recorded, either at the time of admission, or calculated from the patient's date of birth at the time of data collection.

(ii) Gender

Gender is also found to be associated with stroke incidence and mortality, the rise of stroke incidence and mortality being higher amongst males (American Heart Association, 2001). Gender was included to assess whether the research population consisted of more males or females as documented risk factors among participants. Earlier studies suggest an increased risk for men whose mothers died of stroke, and a family history of stroke could be one of the predictors for women.

Marital status

The literature suggests a relationship between the marital status and functional outcomes as well as the challenges experienced following stroke, stroke survivors living alone being at risk of poor functional outcome (Nilsson et al., 2000). The marital status of patients was obtained from their medical records for the purposes of identifying the numbers of single and widowed persons in terms of possible reliance on a care-giver and/or on social support.

(iii) Occupation

According to Tashakkori, Saeki, Ogata, and Hoshuyama (2003), occupation status has a more powerful effect on return-to-work post-stroke than does educational level. It was found that non-manual occupations were associated with increased return to work (Vestling et al., 2003). Information regarding the occupation status of post-stroke patients would give an indication of the extent of the challenge of return-to-work in the context of post stroke recovery. B:

B: Medical Data

This section recorded information about the clinical features and the risk factors for stroke. The risk factors were captured from the patients folders as identified by the doctor. The clinical features include the stroke type, occurrence of coma, cognitive impairment, vision impairments, emotional impairments, speech impairments, muscle tone, and side of the body impairments. These items were chosen after reviewing the literature and identifying these as being common in stroke patients and having an impact on their survival and on their functional outcomes, ADLs and participation (Kaplan et al., 2005).

In the current study, cognitive impairment includes any memory impairment or decreased level of consciousness (Hicks, 2007). Emotional impairment includes depression and/or anxiety (WHO, 2006). Impaired muscle tone includes flaccidity and spasticity (Kaplan et al., 2005), with spasticity being increased muscle tone or hypertonicity (Hicks 2007) and flaccidity being decreased muscle tone (Wasseman et al., 2009). Speech impairments in this study refers to difficulties in articulation (Stroke Education, 2006). These were documented as “Yes” being present in the patient if documented in the medical folder as described in this paragraph.

The type of stroke was documented as either haemorrhagic or ischaemic from information in the folder. Clinical features were recorded as ‘Yes’ if present as documented in the medical folder or as ‘No’ if absent or if not documented in the medical folder. Any clinical features present on admission, or which occurred during admission and were resolved during the admission, were also recorded as ‘Yes’. As suggested by Worster, and Haines (2004), the above categories were used in the interpretation of the documented clinical data.

C: Admission Data

This section recorded length of hospital stay, stroke onset-admission interval, and physiotherapy process.

The stroke onset-admission interval was either documented or calculated as the difference between the date of stroke onset and date of admission. The length of hospital stay was calculated as the difference between the date of admission and date of discharge and was recorded in order to compare the length of hospital stay at Haydom Lutheran Hospital with what was recorded in previous literature. Stroke patients were considered to have received physiotherapy only if it was noted in their medical records. The duration of physiotherapy was calculated as the length of the period between the dates of the first and the last physiotherapy session. The total number of physiotherapy sessions per individual was recorded to determine how often stroke patients at HLH used the services of physiotherapists compared to findings in previous literature.

Validity of data gathering instrument

The data gathering instrument has been validated by Urimbeshi, (2009). It was subjected to a peer review by the study supervisor and colleagues knowledgeable in the field of stroke profile, essential for content validity. Validity is the determination of the extent to which an instrument measures what it is supposed to be measuring. Suggestions made by reviewers were considered for changes before proceeding to the main research. One suggestion was to use the code “99” in cases where the desired date was missing from the records rather than leaving the response fields blank; the researcher added “99” for ‘not applicable’. In section C a question asking whether the patient received physiotherapy after admission was included in the instrument. If the answer was ‘Yes’, items regarding the date of commencement of physiotherapy and total number of physiotherapy sessions were recorded. If the answer was “No” the items were skipped, and filled in by the data abstractor with code “88” for not applicable.

Reliability of questionnaire

Reliability is the consistency of measurement of a given research instrument. After the research assistant was trained, the inter-rater-reliability was tested. The testing of the data gathering instrument was done by collecting data from the records of 15 patients by the researcher and research assistant separately, to test for variations, in the data recording. Cohen's kappa (k) was used to determine the inter-rater reliability coefficient (Worster & Haines, 2004). The advantage of Cohen's kappa k-measure is that it can be interpreted as the extent of agreement achieved compared with the total amount of agreement possible beyond chance agreement (Worster & Haines, 2004).

3.6 PILOT STUDY

A pilot study was carried out to pre-test the data gathering instrument in the current research setting and in order to measure and check the process of data collection and the time taken for the administration of the questionnaires. The aim of the pilot study was to assess whether the instruments followed the order in which the information appeared in the patients' records. It also assessed for the consistency of the terminology of the instruments with those found in the records. The pilot study results assisted in determining the adequacy of the research process and whether, as suggested by Van de port et al. (2006), changes needed to be made before the main study. The records of 10 stroke patients who were not part of the main study was reviewed as part of the pilot study.

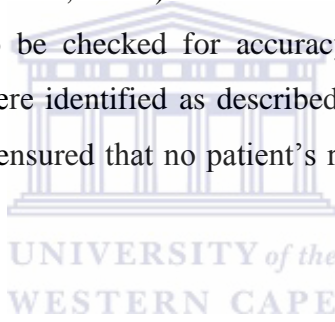
3.7 DATA COLLECTION

Quantitative data collection

After obtaining permission to conduct the study as described in the section on ethical considerations (3.8), the data was collected in two phases: the quantitative phase and the qualitative phase.

Phase 1: Quantitative component

Three research assistants were recruited to assist the researcher with capturing the data from the patient records and the certain specified data extraction strategies were used in order to increase intra-rater reliability. The research assistants were given adequate training and practical sessions before starting data collection (Banks, 2003). The research assistants were advised at the beginning that their work was to be checked for accuracy (Worster & Haines, 2004). The patients' records to be included were identified as described in section 3.4 of this chapter. The researcher and research assistants ensured that no patient's records were duplicated during data collection (Wu & Ashton, 1997).



Phase 2: Qualitative component

Patients to be interviewed for the qualitative phase of the study were purposively selected as indicated. The interview schedule was based on the components of ICF, which include activity limitations, such as walking, self-care activities, which include problems with dressing, bathing and eating, domestic care activities, such as cooking and cleaning the house. Participation restrictions include the inability to return to previous work, and care of the family. Environmental factors include physical environmental hindrances and attitudes of the family and others. The researcher contacted the 10 stroke patients who met the inclusion criteria to obtain their consent and willingness to participate in the study. The interviews were conducted at a place and time that was convenient for each participant. Six participants were interviewed at home, while the other four were interviewed at the hospital. If the patients attended the hospital for the purpose of the interview alone, their transport cost was provided. These interview

commenced with one main open-ended question: *“Please tell me about any problems you have experienced since you had your stroke”*.

Figure 3.1 The characteristics of different purposively selected participants (n =10)

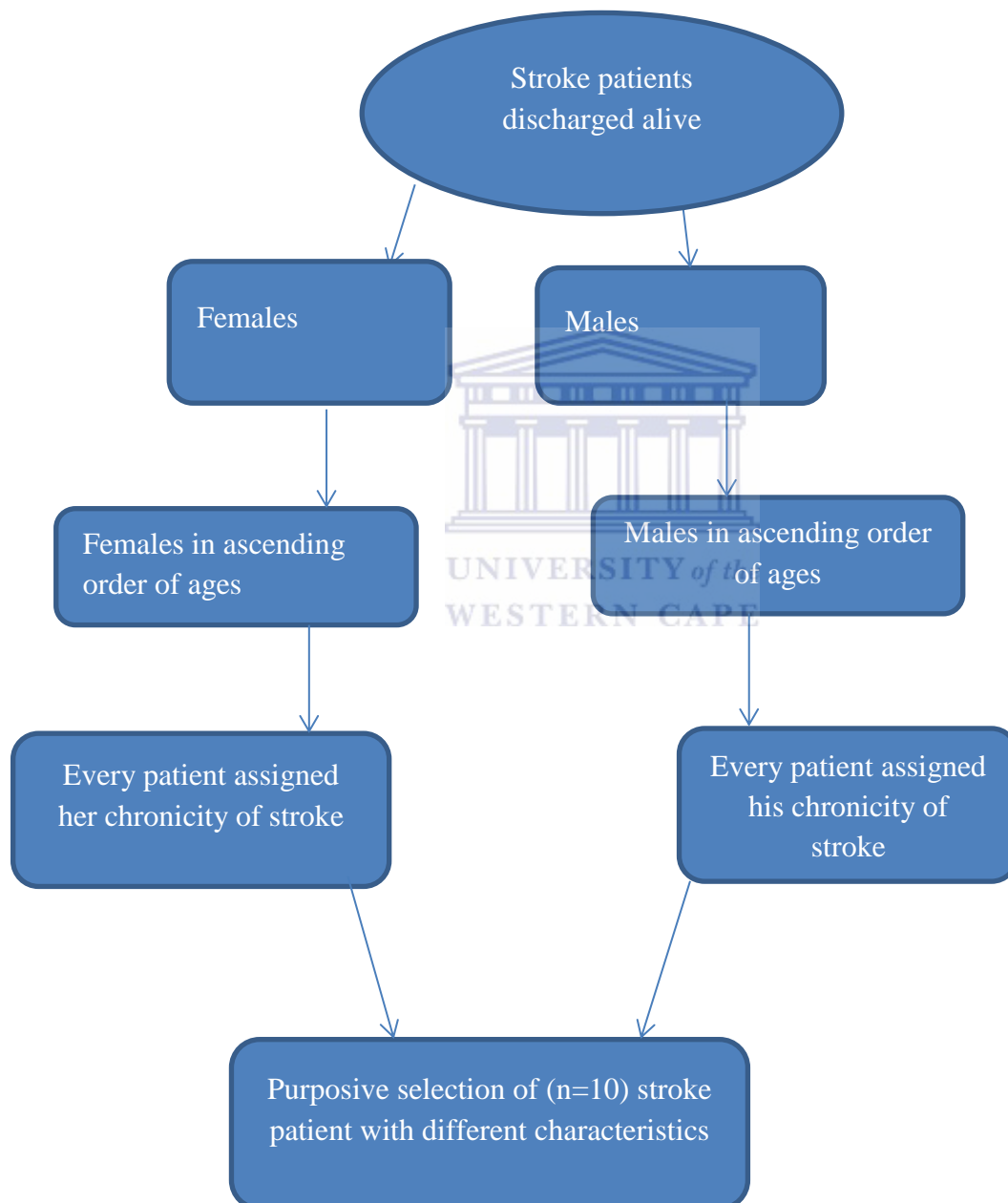
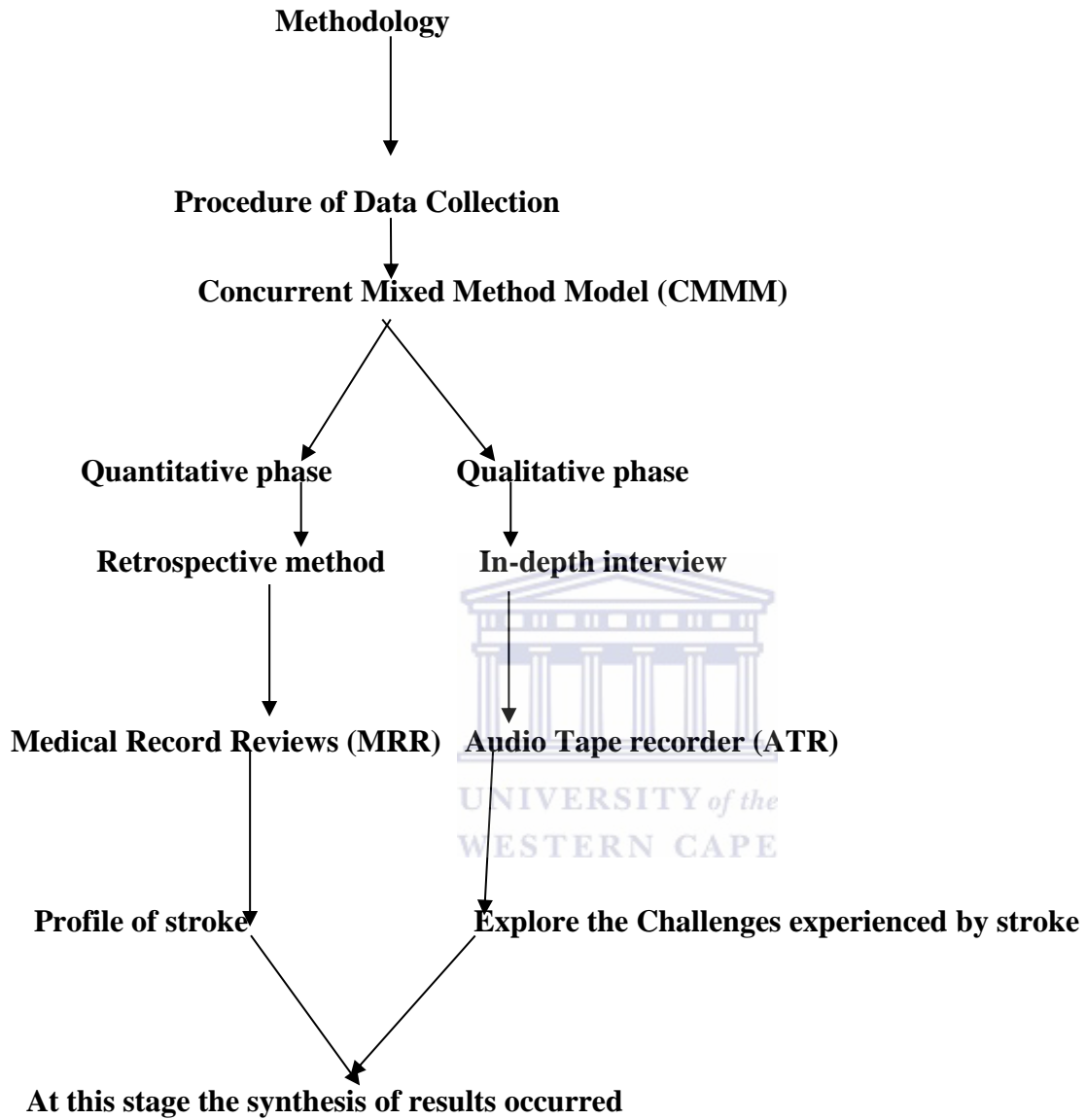


Figure 3.2 Procedure of Data Collection for quantitative and qualitative phases



Trustworthiness of the qualitative data

To establish the trustworthiness of the qualitative data, Shenton (2004) suggested the concepts or principles of credibility, confirmability, transferability, and dependability as essential decisive factors for qualitative research. To enhance and ensure the four criteria applied to this study, different strategies were employed (Graham et al., 2008).

Kersten et al. (2009) considered an essential approach to increasing the research quality would be to plan and conduct the investigations based on trustworthiness, credibility and transferability. In this context, peer examination helped the interviewer to build in these principles through discussions of data interpretation with other colleagues and getting their feedback on the analysis. A third approach to improving the research quality and credibility is the mixed methods design. Qualitative data can support the qualitative analysis. Triangulations possible from the use of both methods provided complementary information and an in-depth understanding of the stroke patients' attitudes and feelings towards the challenges they experienced, and the benefits arising from the intervention study (Krefting, 1991). In order to enhance the credibility of the qualitative data; the themes emerging were illustrated with representative quotations from the transcribed texts of the interviews (Graneheim & Lundman, 2004). To ensure confirmability of the qualitative data, a peer examination was conducted by means of a discussion of the research process and findings with colleagues and experts who have qualitative research method experience. This was for the purpose of reduction, reconstruction and synthesis of products of the data: thematic categories and interpretations (Guba & Lincoln, 1995).

To enhance the transferability of the qualitative data, a clear and distinct description of the study setting, the selection and characteristics of participants, and the data collection and data analysis processes were presented (Graneheim & Lundman, 2004). Reflexivity was checked, for example, a physiotherapist with working experience, can have a general tendency to overestimate or underestimate the problems faced by a person seen as mildly disabled by others. Experiences was therefore, taken from participant's perspectives (Mays & Pope, 1995).

3.8 DATA ANALYSIS

Quantitative data analysis

The Statistical Package for Social Science (SPSS) 14 version was used to analyse the quantitative data collected from medical services of the patients' records. Descriptive information was employed to determine the profile of the sample of stroke patients. The range, mean and standard deviation was used for the age, stroke onset, admission interval, length of stay, duration of physiotherapy and number of physiotherapy sessions (Wu & Ashton, 1997; Worster & Haines, 2004). The data was presented in the form of normal tables and cross-tables, and graphs. Seventeen (17) participants were excluded from the analysis of the cases selection due to more than 10% of the data being missing (Worster & Haines, 2004).

Qualitative data analysis

The tape-recorded interviews in Kiswahili were transcribed in full and then translated into English by the researcher. The transcriptions were read and compared to audio tape recordings several times to verify accuracy (Neumann, 2000). The transcriptions involved and included the researcher's familiarization with the material on several readings, and common concepts were coded (Rochette, 2001). Data analysis was done deductively using predetermined themes according to the ICF. Each theme was coded into categories and corresponding verbatim quotations were put under different categories to support each theme. After the themes and categories had been developed, a further trustworthiness check was made by searching the transcripts for content that could disprove the primary findings, as suggested by Mays and Pope (1995). Persons external to the study looked at the transcripts. The common concepts which had emerged from the participants were coded to protect their confidentiality and anonymity (Miles and Huberman, 1984).

3.9 ETHICAL CONSIDERATIONS

Permission to conduct this study was obtained from the Senate Research and Grants study leave committee at the University of Western Cape, and the Tanzania Ministry of Health and Director of Haydom Lutheran Hospital respectively. For the interview participants, different issues were addressed, stroke patients being regarded as vulnerable, and thus consent from their guardians was considered. Before conducting the interviews, the research aim was explained to those willing to participate and to their relatives. An information sheet was translated for the participants into Kiswahili, the language used by participants. They were given the forms, also in Kiswahili, to read or to be read to them because some of them were illiterate. Finally, signed information written consent was requested from each participant, and they were assured of respect, confidentiality, and anonymity at all times during the research process. Those who had any concerns about their participation were given enough time to consider their participation, as were their guardians before signing the consent forms. . Participation in the study was voluntary, and the participants were free to withdraw from the study at any time. They were told that if anything happened to upset them during the interviews, counselling services would be made available to them. In addition if they indicated that they needed any rehabilitation during this period they would be referred appropriately. No participants needed counselling during the study. The research assistants has signed a confidentiality agreement form. The final versions of the study findings will be made available to the staff of Haydom Lutheran Hospital, Tanzania Ministry of Health and all relevant parties.

3.10 CONCLUSION

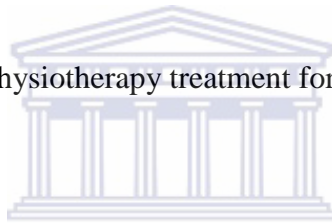
This chapter presented the methodological framework of the study, including a detailed description of the research setting, the population of the study, the sample of the study, the data gathering instruments, the pilot study, data collection procedures and finally the data analyses. Chapter four presents the research results and discussion.

CHAPTER FOUR: QUANTITATIVE RESULTS

4.1 INTRODUCTION

Chapter four outlines the quantitative research results from this study, which are presented according to the study objectives. The results of the current study are presented according to the objectives of the research, with detailed discussion of each component. The chapter is structured according to the following research objectives:

1. To determine the documented risk factors among stroke patients AT Haydom Lutheran Hospital.
2. To identify the interval between stroke on-set to time of admission and length of hospital stay.
3. To identify the process of physiotherapy treatment for the stroke patients.



As described in Chapter three, a total of 145 stroke patients were admitted to Haydom Lutheran Hospital between 1st January, 2004 and December 31st, 2010. Therefore, this total represented the entire population of stroke patients that could be found. From these 145 cases, a final sample of 128 participants were included in the final data analysis for the quantitative phase answering the first three research objectives. Seventeen stroke patients were excluded due to failing to meet the criteria or to missing and incomplete data. Of the final sample of 128 participants, 10 were chosen for in-depth qualitative interviews in answering objective four.

4.2 DETERMINE DOCUMENTED RISK FACTORS AMONG STROKE PATIENTS.

This section presents quantitative research results and discussion, organised around Research Objective One.

4.2.1 Age group and gender

Of the sample, 61 (47.7%), were men, and 67 (52.4%) were women. The ages of the stroke patients range widely from 19 to 80 years. The mean age of the sample of stroke patients studied was 57.7 years (SD=18.673). The majority (63.8%) of the participants were 69 years old or younger. It was found that (49.2%) of participants were younger than 50 years.

4.2.2 The relationship between marital status, gender and stroke risk

The results show that, out of 128 participants, 113 (88.3%) were married. The marital statuses of the remaining were relatively evenly distributed 6 single, and 3 separated. It was notable that 63 (94.0%) of the females compared to 50 (82%) of the males were married.

Table 4.1 Relationship between marital status and gender (n=128)

Marital status	Gender		Total (%)
	Male (%)	Female (%)	
Single	5 (8.2)	1(1.5)	6(4.9)
Married	50(39.1)	63(49.2)	113(88.3)
Living together	3(4.9)	0	3(4.9)
Separated	3(4.9)	0	3(2.3)
Divorced	0	1(1.5)	1(1.5)
Widowed	0	2(3.0)	2(3.0)
Total	61(47.7)	67(52.3)	128(100)

4.2.3 Employment

Most of the stroke patients (85/128) were not employed at the time of the stroke. Amongst those that were employed, 13 were teachers, 42 in farming, and the remaining included 1 pastor and 10 others as is presented in table 4.2

Table 4.2 Employment categories (n=73)

Occupation	Frequency	Percentage
Teacher	13	4.7
Cultivator	7	5.5
Farmers	42	32.8
Pastor	1	0.8
Others	10	6.1

4.2.4 Documented impairments for stroke among participants

Amongst the 128 participants, impairments associated with stroke were present and identified as follows; emotional impairments 32.8%, Cognitive impairments 30.5%, visual impairments 3.9%, Speech impairments 36.7%, Occurrence of coma 20.3%, Bladder incontinence 25.0%, and Bowel incontinence 32.5%. Of the participants, 63.3.0% were affected on the left side, while eighty-one 36.7% were affected on the right side. Both sides were affected in 1 participant 0.8%. Table 4.3 illustrates the number of impairments.

Table 4.3 Distribution of the documented clinical features of the participants

Clinical feature	Frequency (n)	Percentage (%)
Cognitive impairment	39	30.4
Emotional impairment	42	32.8
Speech impairment	47	36.7
Vision impairment	5	3.9
Abnormal muscle tone	36	28.1
Coma	33	25.8
Bladder incontinence	32	25.0
Bowel incontinence	73	57.0
Side of the body impaired		
Right	47	36.7
Left	80	62.5
Both sides	1	0.8



4.2.5 Frequency of risk factors for stroke among participants (n=128)

Hypertension was the major risk factor reported for 71 (55.4%) of participants, followed by smoking and diabetes in 34 (26.5%) cases, cardiac failure was reported in 11 (8.5%), and the remaining 12 (9.6%) was composed of a previous stroke, TIA and HIV infection respectively. Hypertension was most common risk factor for both types of stroke. Other important risk factors included smoking, alcohol intake as well as previous history of stroke. In-hospital mortality rate was 43% see table 4.4. It was found that 50.4% of the study sample had a least one risk factor with 33.5% having a combination of two risk factors or more.

Table 4.4 Documented risk factors for stroke among participants (n =128)

Risk factors	Frequency	Percentage
Hypertension	71	55.4
Smoking	20	15.6
Diabetes	14	10.9
Cardiac failure	11	8.5
Previous stroke	6	4.6
Transient ischemic attack	5	4.3
HIV	1	0.7
Total	128	100

Note; some patients had more than one risk factor.

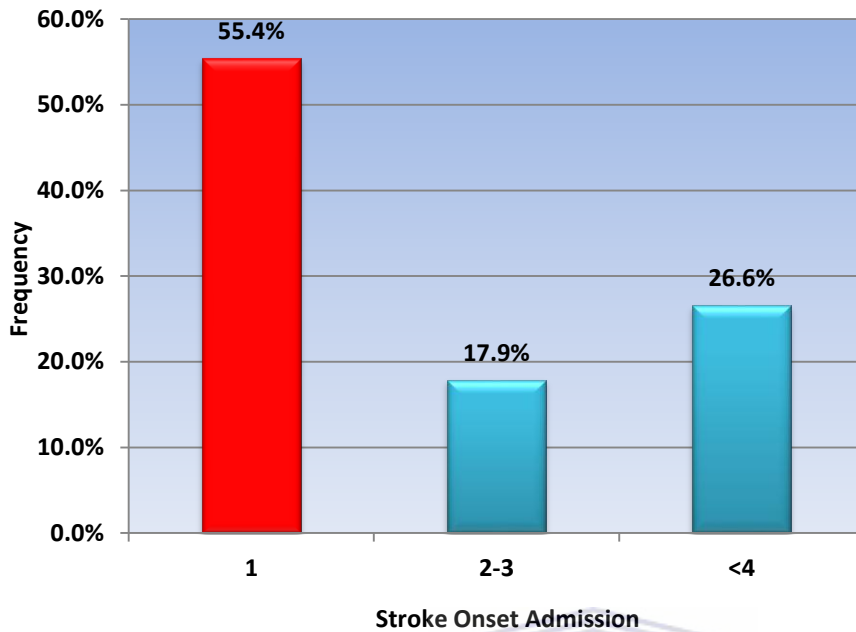
4.3 DETERMINE INTERVAL BETWEEN STROKE ON-SET, TIME OF ADMISSION, AND LENGTH OF HOSPITAL STAY.

This section presents quantitative research results and discussion according to Research Objective Two. The section will present the results and discussion relating to the stroke onset-admission interval (in days), and length of hospital stay (in days), with a focus on the role for treatment and rehabilitation in the context of these processes.

4.3.1 Stroke onset admission interval and treatment implications (n=128)

Seventy one (55.4%) of participants were admitted to the hospital on the same day or less than 1 day after stroke onset, followed by those who were admitted less than four days after stroke 34 (26.6%), and the remaining being admitted less than two or three days 17 (17.9%). See figure 4.1.

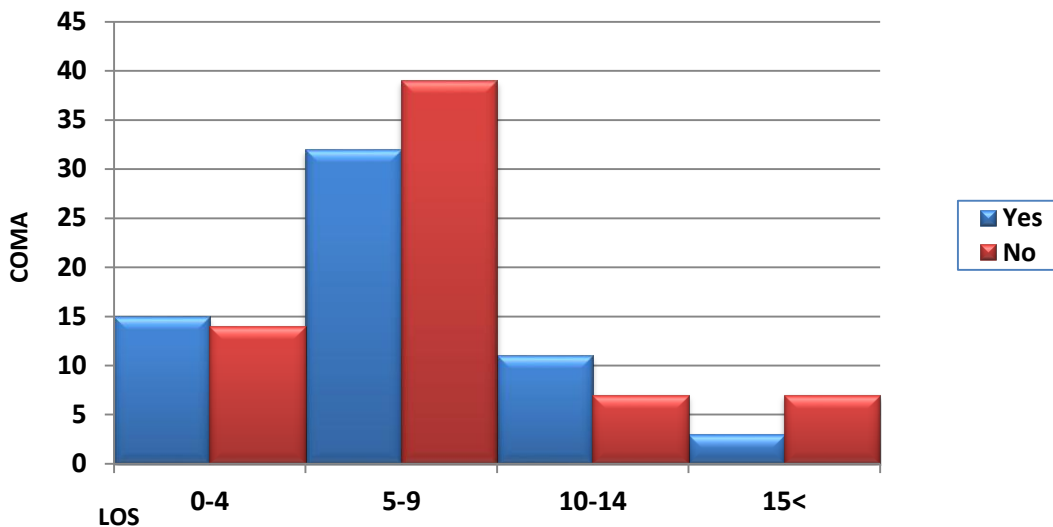
Figure 4.1 Time interval between stroke onset and admission to hospital (n=128)



4.3.2 Length of hospital stay (n=128)

Length of hospital stay varied between 0 and 180 days. The mean length of hospital stay was 12.2 days with standard deviation of 4.145. Among the stroke patients, 47.7% experienced a coma during the hospital stay. Of those who were in a coma, most (32/61) were in hospital between 5-9 days as is illustrated in figure 4.2.

Figure 4.2 Length in group of days with frequency



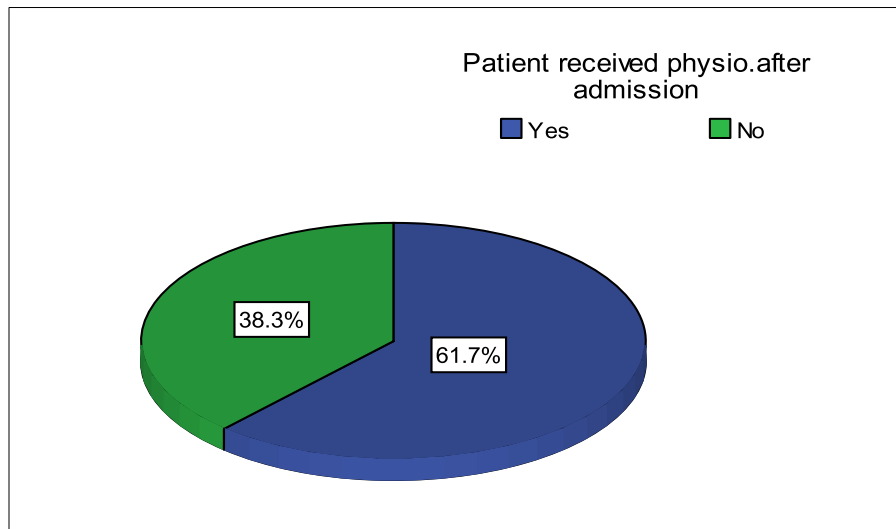
4.4 DETERMINE THE PROCESS OF PHYSIOTHERAPY FOR THE PARTICIPANTS

This section presents the quantitative research results and discussion according to Research Objective Three, related to the following items: participants who received physiotherapy, time of commencement to physiotherapy, duration of physiotherapy and the total number of physiotherapy sessions received by the participants.

4.4.1 Number of participants who received physiotherapy post admission (n= 79)

Out of one hundred and twenty-eight, only seventy-nine had received physiotherapy during the hospital stay after admission, accounting for 61.7%. (See figure 4.3)

Figure 4.3 Participants who received physiotherapy during hospital stay (n=128)



4.4.2 The time of commencement of physiotherapy post admission (n=79)

Among the stroke patients, 61.7% had received physiotherapy within 3 days after their admission. The results revealed the time of commencement of physiotherapy from admission had a mean of 2 days as is illustrated in figure 4.5.

Table 4.5 Interval between the date of admission and the time for commencement to physiotherapy (n=79)

Time (in days)	Frequency	(%)
0-3	28	35.4
4-7	23	29.1
8-11	15	18.9
12≤	13	16.6
Total	79	100

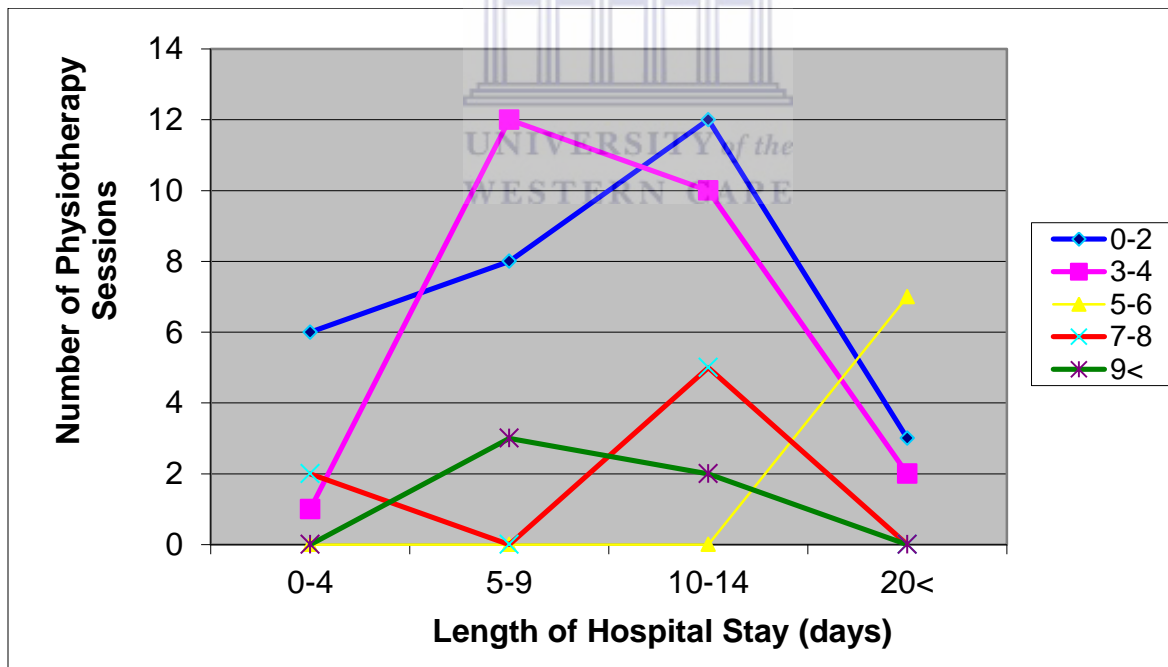
4.4.3 Total number of physiotherapy sessions.

The findings revealed that the total number of physiotherapy sessions for a participants varied between 1 and 32 with the mean of 3.7 sessions (SD=18.8). The majority of the participants (59.5%) had less than 5 physiotherapy sessions.

4.4.4 Duration of physiotherapy present within the period between first and last treatment (n=79)

Duration of physiotherapy is the period between first and last treatment. The participants received physiotherapy within a period between one to 80 days, with a mean of 14.14 (SD= 5.790 days). The majority of the participants 46/79 (58.6%) started physiotherapy within 5 days post admission to the hospital. (See figure 4.6).

Figure 4.6 illustrated length of hospital stays versus number of physiotherapy sessions



In the above figure, the data points have various relationships. The moderate correlation indicates that there is a close relationship between length of hospital stay and the number of physiotherapy sessions.

4.5 SUMMARY OF QUANTITATIVE RESULTS

This chapter presented the results of the quantitative research according to the Research Objectives. Each Objective was supplied with results and detailed discussion. Objectives are 1) To determine the documented risk factors among stroke patients AT Haydom Lutheran Hospital, 2) To identify the interval between stroke on-set to time of admission and length of hospital stay, 3) To identify the process of physiotherapy treatment for the stroke patients, and 4) To explore the challenges patients experienced with regards to activity limitations, participation restrictions, and various environmental factors.

Research Objective One: The low number of stroke patients admitted to the hospital during the study period is surprising and should be further evaluated. To determine the documented risk factors among stroke patients AT Haydom Lutheran Hospital. The results revealed that 65% of study population were 64 years and younger, and the mean age was 57.7 years. It was also found that 90.6% (116/128) of the males and females were married, the most common clinical features in the present study were emotional, cognitive, vision, and speech impairment, which is the most prevalent. Risk factors for stroke found to be the most prevalent in the study were hypertension, smoking, and diabetes, cardiac failure and previous stroke. The most prevalent clinical features and risk factor for stroke reported in the present study are well-established for stroke.

Research Objective Two: To identify the interval between stroke on-set to time of admission and length of hospital stay. The results indicated that only 65% of the participants were admitted not later than one day after getting stroke. The majority of the participants had 63% fall in the LOS between 4-10 days. Only 45/128 participants were admitted not later than one day after getting stroke, the majority of the participants 35% got physiotherapy and the majority among them 67.3 started physiotherapy within 3 days with a mean of 3.7 days sessions among the study sample. Of those 128 participants, only 79 (61.7%) had received physiotherapy during admission. The results indicated that the stroke-onset admission interval is longer than recommended in the literature, and this could enhance higher case fatality rate and long-term disability. The provision of physiotherapy services for the current study population was found to be lower than suggested by the other literature.

Research Objective Three: To identify the process of physiotherapy treatment for the stroke patients. Stroke is the leading cause of chronic disability among young/elderly people worldwide. Individuals suffering a stroke will require a range of services across the health care continuum at various stages of their recovery. After acute medical intervention and rehabilitation, a high number of stroke patient's return to their home, but have restrictions in some way with their activities of daily living. Residual deficits can be physical, cognitive, perceptual or sensory and can affect the survivor and family both emotionally and socially. Many individuals who return home can benefit from community-based rehabilitation services provided by therapists. It is expected that the guidelines will be a valuable resource tool to assist community health care providers in developing client services plans based on evidence and best practices. The ultimate goal is that stroke survivors and their families will have timely and consistent access to rehabilitation services in the community across Haydom, Tanzania.

The critical influence of admission interval and physiotherapy on recovery prospects and long-term effects implies that all health sectors should take account of early admission to the hospital and refer post-stroke patients as soon as possible to avoid further complications that may result in disability and death. The research finds that the highest priority during the early phase of stroke on-set should be towards preventing a recurrence and the complications as well as to ensure proper management of general health functions. Additionally, patients should be mobilized and encouraged in the resumption of self-care activities, and be provided with emotional support to the patient and family. In addition, after the acute phase of stroke, the focus of care should be directed towards assessment and recovery of any residual physical and cognitive deficits, as well as compensation for residual impairment.

CHAPTER 5: DISCUSSION OF QUANTITATIVE RESULTS

5.1 Age group and gender

The mean age of acquiring stroke in this study was 47.8 years which was lower than the other studies reported in Pakistan (Khan et al., 2009), and much lower than studies in the United States (Sacco et al., 1997) that revealed 43.7 years for males and 48.7 years for females. The higher number of females in the study population does not relate to the expected higher incidence of stroke amongst males, as highlighted in the literature review. It relates to a degree with the profile of stroke patients in this sample, which found 52.3% of stroke patients female, compared to 47.7% male. The larger proportion of women could mean that males in this area who sustained strokes either had a higher rate of mortality, or did not meet the inclusion criteria of the stroke group as a result of being either too severely or too mildly impaired.

These findings are similar with findings in South Africa by Rhoda (2002) which revealed that females were more affected (54%) as compared to males (46%). Furthermore the findings of Urimbeshi (2009) revealed 53.2% females compared to 46.8% males. Similarly, Brown et al. (1998) found that females were 54.5% compared to males 58.7%. However, other studies have recorded a slightly higher incidence in males than in females (Walker et al., 2000; Feigin, 2007; Zenebe et al., 2005). The higher prevalence of females as opposed to males could be explained by the phenomenon that fewer males reach old age compared to females (Beales, 2000).

Our patients were younger than other developing countries. Moreover, of these, 30% of our patients were younger than 45 years. The European Registers of Stroke (EROS) reported a median age of 73 years. However, the mean age of our patients was similar to that of other hospital-based studies from Sub-Saharan African. Kengne and Anderson, (2006) revealed that, this younger age group is the trend for sub-Saharan countries given the increasing rate of HIV/AIDS. In Senegal, the mean age was 60.4 years, 58 years in Gambia, and 51 years in South Africa. Some studies from haemorrhagic strokes patients indicate a significantly younger patient compared to ischemic stroke patients. Our findings are in agreement with literature review indicating that the proportions of stroke patients age 45 or younger is higher in African countries as compared to higher- income countries (Bonita et al., 2006).

In the current study, 3% of the participants were widowed. This number was however considerably less than the 64% of widowed participants that informed part of a study on stroke patients in the Bishop Lavis area (Rhoda 2002). This is expected, considering the fact that females are known to live longer than males (Beals, 2000). According to Worley (2001), women are more likely to become widowed than men, since women not only have a longer life span, but also tend to marry men older than themselves. Another contributing factor is that, following divorce or widowhood, women are less likely to remarry than men (Worley, 2001). This can be linked in the sample to a greater number of males (49.2%) who were married compared to females (39.1%). It has been suggested that marital status is extremely important in the context of family support. A spouse can be a potential source of practical help and emotional support (Choi, Suh, Kim, Hong, & Kim, 2000). The majority of the females with stroke who were widowed as found in the current study are unlikely to get such support. In addition it can be stated that widowed participants and their families were likely to encounter greater hardship when they became ill due to lack of support.

5.2 Employment

The findings of the present study revealed that the majority of the participants (32.8%) were farmers before having stroke. This is supported by the socio-economic structure of the Mbulu-District, where the majority of the population is engaged in subsistence agriculture. In Tanzania, agriculture is mainly for subsistence and thus associated with lower economic status. This means that there is widespread poverty, as can be observed in the fact that the majority of the study participants fall in the low income category. Hayes et al.(2000) further confirm that low income among stroke patients has been associated with poor physical function, because patients are unable to afford good nutrition, housing and medical care. A literature review conducted by Kengne and Anderson(2006) on the epidemiology of stroke patients in sub Saharan Africa revealed that up to 72% of patients with stroke have low-income backgrounds, such as labouring jobs.

5.3 Documented impairments for stroke among participants

The study results for speech impairment, of 37% are in line with both developed country results, that reported 40% of the study population speech impairment (Isagoda & Nakamura, 2005), and developing countries, such as Ethiopia figures of 30-60% (Edward et al., 2006).

The study population with cognitive impairment was found to be 39 (30.4%) and was slightly lower than the (46.2%) reported by Hayes et al. (2003). It was found that cognitive impairment has a negative impact on ability to perform ADLs and social roles (Johnston, et al., 2003). Therefore, a significant proportion of the study population will need more assistance in ADLs and social roles. In order to maximize the functional level of stroke patients at Haydom Lutheran Hospital, post-stroke and rehabilitation strategies for cognitive impairment should be considered.

5.4 Frequency of risk factors for stroke among participants

The findings of the current study correspond with global statistics, which report hypertension as being the most prevalent modifiable risk factor for stroke (Lemogoum et al. 2005). A study in the USA by Bovet et al. (2002) revealed that, hypertension was by far the most important and prevalent risk factor for stroke. Likewise, in developing countries hypertension is the major identified risk factor in numerous studies, for sub-Saharan Africa (Rosmand et al., 2005), Bahrain (Al-Jishi & Mohan, 2000), and South Africa (Connor et al. 2004). Despite the established fact that hypertension is the major risk factor for stroke, many people have a very poor understanding of hypertension and stroke (Hale et al., 2005; Mensah, 2008). In some rural settings, community educational sessions on hypertension and stroke have been shown to be effective in contributing towards stroke prevention in those respective communities.

The relationship between HIV infection and stroke has been widely discussed in literature. Although the prevalence of HIV infection in the general populations in Tanzania was reported be 15%, 21.8% of the study participants were HIV positive. In comparison the Durban Stroke Register in South Africa found 20% of younger black stroke patients HIV positive and had HIV-associated with stroke.

The study revealed that other common risk factors were smoking (15.6%) and diabetes (10.9%). These percentages were lower than what were found in Bahrain (Al-Jishi and Mohan, 2000), with such different frequencies of smoking and diabetes observed between the current study population and other populations are most likely a reflection of the differences in lifestyles among those populations. Smoking was found to be associated with stroke mortality rate (Frantz, 2005), and they are risk factors related to lifestyles. However, the awareness of the relationship between these factors and stroke is low amongst communities internationally (Hale, et al., 2005). Strong et al. (2007) confirmed that there is clear evidence that health education about prevention of risk factors for stroke is required among the population generally. Therefore, one can conclude that prevention in the form of educational programmes, and physical activity, smoking cessation and obesity prevention is needed to be targeted generally among the younger population.

The risk of stroke increases substantially with the increase in the number of risk factors. These risk factors are said to interact to increase the probability of a stroke (Tanne et al., 1998). In the present study, as also reported in previous studies (Warlow et al. 2001; Radanovic, 2000) the combination of the two risk factors hypertension, and diabetes, presented as one factor or in combination in the majority of the study sample.

5.5 INTERVAL BETWEEN STROKE ON-SET, TIME OF ADMISSION, AND LENGTH OF HOSPITAL STAY.

The findings of the current study revealed that the common onset-admission interval was less than one day, with 71/128 (55.4%) admitted within this timeframe. Our findings are similar to Zambia and Senegal where average time from onset to admission was reported to be 3 hours. The findings were contradictory to those of Kengne and Anderson (2006) which indicated that in Sub-Saharan Africa, stroke patients are often presented to the hospital more than 2 days after onset. The shorter stroke onset-admission interval observed in the current study may be due to the Community-Based Health Care Programme (CBHC) which operates in almost all regions of Tanzania since 2006.

Hellander (1999) emphasizes that stroke rehabilitation should begin during acute hospitalization, as soon as the diagnosis of stroke is established, in order to put under control the life-threatening

problems. However, the stroke onset-admission interval that was found in the present study is too long, which is likely to increase the risk mortality and post-stroke disabilities. Thus, referral patterns, difficulties of access to transport, inadequate knowledge among medical professionals could explain the reason for long delay between stroke on-set and admission.

Jacob (2009) confirmed that stroke patients need to get to the hospital within 60 minutes after the attack, because this could decrease the risk mortality and post-stroke disabilities. However, this implies that all health sectors should take account of early admission to the hospital and refer post-stroke patients as soon as possible to avoid further complications that may result to devastating disability and death. However, the admission to hospital within 60 minutes as proposed by Jacob (2009) might not be feasible in other settings, particularly rural areas. For instance, the current study revealed that factors such as lack of transportation, poor knowledge of stroke, fear of stigma and believing in traditional healers could all contribute to delay of early hospitalization of stroke patients.

The mean length of hospital stay was greater than reported by Urimbeshi (2009) that reported a mean length of hospital stay to be 8.2 days in Rwanda. The length of hospital stay of 12 days of stroke patients admitted to the Chris Hani Baragwaneth Hospital, which is a government hospital in South Africa, was similar to our findings (Hale & Eales, 1998).

Some of the medical complications which contribute to LOS are post stroke dysphasia, urinary incontinence, aspiration pneumonia, and seizures before admission into hospitals. However, Sexana et al. (2007) in their study did not find any relationship with the above mentioned factor and LOS. Worth noting is that, medical complications such as pressure sores, severity of stroke and other complications occurring during inpatient and the subsequent stroke could result in more functional impairment leading to prolonged hospitalization. Other factors could also necessitate a short hospital stay. For example, lack of enough hospital facilities such as beds could hasten the discharge of the patients for the bed to be assigned to a new admitted patient. Consequently, Pollack and Disler (2002) highlighted that where the observed LOS is short, this may be associated with medical doctors being pressured by a limited capacity of the hospital towards discharging stroke patients from the hospital environment as early as possible in order to find places for new patients.

5.6 PROCESS OF PHYSIOTHERAPY FOR THE PARTICIPANTS

These findings were similar to those of Hasan (2009) who found that 67.6% had received physiotherapy during their hospital stay. The current study findings were in agreement with (WHO, 2005; Rimmer et al. 2008) found that, physiotherapy participation with stroke and other disabling conditions is substantially lower than in the general population. Several reports have noted that a sedentary lifestyle can precipitate functional decline in persons with stroke. Reduced cardio-respiratory fitness associated with a lack of physiotherapy may be secondary condition that limits the transfer of walking skills obtained rehabilitation to the community. Similarly, inadequate amounts of physiotherapy can accelerate person's functional decline and limit their ability to work, recreate, and engage in community events (Wasserman et al., 2009).

The author advises that, people with stroke are especially vulnerable to the effects of sedentary lifestyle and would benefit greatly from increasing the amount of physiotherapy they regularly obtain. Unfortunately, options for physiotherapy and recreation are often limited by numerous personal care (e.g. motivation, self-efficiency), and environmental- or facility barriers e.g. inaccessible programs, equipment, and services offered in community recreation facilities. The study conducted in the US by Rimmer et al. (2008) found that increasing participation in physical activity among people with stroke continues to be challenges for healthcare professionals. The authors reported that the five most common barriers to accessing physiotherapy as; cost of program (61%), lack of awareness of physiotherapy services (57%), no means of transportation to a hospital centre in the area (57%), and no knowledge of where to exercise (44%). The least common barriers for participation for physiotherapy could be lack of interest, lack of time, and concern exercise would worsen their condition. People with strokes reported several barriers that prevented or reduced their participation in physiotherapy. Healthcare professionals (therapist doctors and Nurses) must identify and remove these barriers to promote greater participation in physiotherapy among people with stroke (Rimmer et al., 2008).

As recommended from some other studies that, availability of an education programmes, rehabilitation services, and involvement of all government sectors, would increase the rate of participation among people with stroke.

The study findings predict a higher prevalence of long-term post-discharge as a large number of participants 38.3% do not have a chance to benefit from physiotherapy. According to Physiotherapy Association of British and Columbia, (2007) those who do not receive physiotherapy are prone to develop further complications such as joint or muscles problems. This reinforces that stroke patients should be assessed and start physiotherapy treatment within 3 days of admission. The findings of current study are similar to the study conducted in Nigeria by Adebola & Kolapo (2006) and a study conducted in the UK by Smith (2010). Early activities of daily living such as moving in bed, getting out of bed, and getting up to a chair or wheelchair can reduce the complications of long stay in hospital. Early therapy initiation, including range-of-motion exercises and physiologically sound changes of bed position on the day of admission, followed by a progressive increase in the level of activity, should be provided as soon as medically tolerated. Early mobilization should also include encouraging the patient to resume self-care activities and socialization (Wilet et al., 2004).

The sessions for physiotherapy interval services for the current study population were found to be lower than that which was suggested by literature. For instance, the study conducted in the US by Jette et al. (2005), aimed to describe adequate physical therapy services provided to patients. The findings revealed that total number of physiotherapy sessions was 13.6. Patients attended, on average, 1.5 physiotherapy sessions per day, with each session lasting 38.1 minutes. This approach to care is largely consistent with existing stroke care guidelines, and could be correspond with the current study that the mean total number of physiotherapy sessions were three which is indicated to be low. In addition, the European Stroke initiative recommend at least 3 to 4 physiotherapy sessions per day for better outcomes (Hacke, et al., 2000).

This implies that the number of physiotherapy sessions should be increased in order to avoid higher fatality rate and long-term disability, and improve recovery and long-term health prospects.

The findings revealed that the mean duration of physiotherapy was between period of one and eighty days within a mean of 4 days (SD= 12.273 days). These findings were consistent with the overall mean duration of physiotherapy which was 3 days. However, such duration should be supplemented by a long-term follow-up post-stroke discharge as treatment continues to show

positive results beyond six months possible to post-admission (Kwakkel et al., 2004). Rehabilitation commencement time and intensity, after adjusting for admission functional status and severity of stroke, remained to be important predictors of stroke functional outcomes.

This study supports the commencement rehabilitation early and intensively and provided evidence that this claim can be extended to acute stroke patients admitted to a hospital.



CHAPTER 6: QUALITATIVE RESULTS AND DISCUSSION

This chapter presents qualitative research results and discussion according to Research Objective Four. The overall aim of the qualitative phase was to explore the challenges experienced by stroke patients. The challenges experienced by the participants were grouped into three pre-determined themes and two emerging themes. The pre-determined themes were: activity limitation, participation restrictions, environmental barriers, while the emerging themes were uncertainty about the future and discharge challenges (see table 6.1).

Table 6.1 Main-themes and sub-themes of in-depth interviews (n=10).

MAIN-THEMES	SUB- THEMES
LIMITATION IN ACTIVITIES	Limitations in walking e.g. mobility indoors activities
	Limitations in self –care e.g. bathing, dressing
	Shame at the loss of independence being dependent of the others
	Limitations in domestic care activities Shopping, cleaning the house, and showering.
PARTICIPATION RESTRICTIONS	Inability to return to the previous work
	Inability to participate to the leisure activities such as religious activities and hobbies activities
ENVIROMENTAL BARRIERS	Physical barriers
	Losing the respect of the community
	Social barriers (interactions)
	Attitudinal barriers
	Restriction from infrastructure Inaccessibility to physiotherapy means transport
UNCERTAINTY ABOUT FUTURE	Lack knowledge about future and stroke itself
DISCHARGE CHALLENGES	Satisfaction with the rehabilitation in hospital
	Satisfaction with follow-up to the community

Description of the interview participants (n=10)

After the identification of stroke patients admitted to Haydom Lutheran Hospital between 1st Jan 2004 to December, 2010, a sub-sample of 10 discharged patients was purposively selected from the major study sample (n=128) due to their characteristics. Five participants were female and five male (see table 4.8 below). In-depth interviews were conducted as follows: 6 participants at their homes and 4 participants at the hospital. Interviews were conducted within 20-30 min for each of the participants. The interviews were conducted by the researcher on December 2010.

The in-depth interview was designed with one main question “*Please tell me about any problems you’re having since you got stroke*”, and a number of sub-questions:

Sub-questions:

- Which activities can you do since you had the stroke?
- Are you unable to participate in any events after you experienced a stroke?
- Do you feel that your relationships with your family/other people have changed after the stroke? If so, how?
- How do people react towards you since you have experienced the stroke?
- Are you accepted and supported by those around you?
- Do you experience any challenges with your physical environment? E.g. stairs, toilets etc.

For the purpose of anonymity and confidentiality, the transcribed quotations of data from the interviews were cited in codes, as **P1** up to **P10**. The demographic characteristics of the participants who were interviewed are presented in table 6.2

Table 6.2 Demographic profile of interview participants

Participant	Gender	Current age	Marital status	Occupation before stroke	Chronicity of stroke (months)
P1	Male	22	Single	Student	4
P2	Male	28	Widowed	Farmer	12
P3	Male	45	Married	Farmer	14
P4	Male	54	Married	Farmer	22
P5	Male	72	Married	Teacher	36
P6	Female	32	Single	Teacher	7
P7	Female	56	Married	Farmer	15
P8	Female	68	Separated	Homemaker	28
P9	Female	77	Married	Accountant	22
P10	Female	79	Married	Farmer	25

6.1 Limitations in activities experienced

6.1.1 Limitations in walking

Limitation in walking activities after stroke was commonly associated with the paralysis of one side of the body, with weakness of arm and leg or difficulties with balance. Limitation in walking was described by three of the participants interviewed. Heaviness, weakness as well as stiffness of the affected parts of the body have been described as the main source of decreases in independence or limitations. The informants reported that

“You know walking is very difficult for me; when I try to lift up my leg I can’t because it is too heavy and I need support so that I keep my balance on stepping” (P8).

Other participants talked about the same challenges:

“For the time being I become to be sick in three years now; I have never been able to walk and I always use a wheel chair to go somewhere... someone must support me ...Because of my arm and leg both being heavier and paralytic” (P6).

Every time I walk outside my room I went wrong way because my leg doesn't follow where I intended to go” (P7).

These findings are consistent with the findings of previous studies which indicate that limitation in walking is a very common challenge among stroke patients (Poland et al., 1998; WHO, 2001). Another study conducted by Schmid (2009) using qualitative data to explore the perceived consequences of post-stroke said that limitation in walking increases dependence and results in a fear of falling. The study by Hendricks et al. (2002) revealed that the survivors of stroke patients lack mobility due to lack of physical support. From the findings of this current study and those of previous studies, the author views a lack of physical support and motor impairment of the lower limb as a key factors resulting in limitation in walking activities among stroke patients. Thus the findings of the current study propose rehabilitation strategies to address limitations in gait experienced.

6.1.2 Limitations in self-care activities

In addition to not being able to walk, three of the participants interviewed highlighted that independent self-care activities such as feeding, dressing, bathing, toilet use, all required regular assistance, which was another noticeable limitation. One of the participants said that:

“I feel shameful to request my relatives of opposite sex to go for sanitary service... Yes I missed some relatives to take care for me... because I couldn't take care of myself ...when I need to go on the way to the toiletin...” (P2).

Another participant expressed difficulties with putting on trousers as a source of feeling not able to perform.

“You know, like once you learn how to put your shoes on, your trousers in, dressing and washing of myself, everything, became very problematic” (P9).

Some participants felt that it was shameful to ask somebody to assist in feeding and bathing, as expressed by one of the participants,

“I can’t feed myself without assistant... because of my arm are stiff so it gives me many problems... I couldn’t even bath myself ...my aunt she is helping me always” (P8).

During the interview one of the participants highlighted that she felt shame to ask her son to assist her in bathing and dressing etc. Feeling shame is common after stroke due to the weakness and difficulties in moving the parts of the body. The participant reported that

“You know I feel shame to ask my son to assist me in bathing and dressing, it is always a disturbance to him... I feel better this to be done with my daughter... because my arm and the leg is very stiff I could not wash my lower leg myself I have to get support by somebody” (P9).

These findings are consistent with the study done in UK by Pollack et al. (2002), Urimbeshi (2009), and Ellis-Hill et al. (2009), and by Ch’Ng et al. (2008) in Nigeria, which found that after stroke, survivors had difficulties in performing self-care activities like eating and dressing. Embarrassment at the loss of independence due to weakness and psychological factors due to some degree of stroke disability or impaired in body functions is common. Our findings were in general consistent with previous studies, by Urimbeshi (2009), and Rimmer et al. (2008), which found that 6 months post stroke, 47% were unhappy to ask close relatives for assistance during bathing, 35% had limitation to put on their own clothes. The interview results were consistent with studies that find this dependence can be a source of psychological trauma as sufferers feel embarrassed to rely on friends or relatives. The interviews also have similar findings to the qualitative study conducted by (Ch Ng’et al., 2008) that revealed that in the longer term dependence on others leads to emotional challenges which including depression, isolation and sense of loss.

Therefore, the current study proposes that availability of rehabilitation and follow-up care in the community could assist discharged stroke patients to reduce the shame from dependence on others, and help them to feel less isolated. In addition, psychological support services are very important to deal with psychological problems.

6.1.3 Limitations in ability to perform domestic activities

In addition to problems of walking and self-care, domestic activities such as cooking, and cleaning house were highlighted by three participants. These participants felt that they were able to do only part of the domestic activities; which include cooking, washing clothes, cleaning the house. These were signified by some participants' responses:

"I can cook, but I couldn't get food from the fire or water on myself and I can't lift the glass of water, because my hand is very heavy and stiff, then I call my daughter to come and help me". (P9).

One of the participants reported difficulty in washing the clothes,

"You know my sister use to do washing my clothes because this bad side can't even grasp anything on this side look my son ... but God is good that they do for me always"(P6).

One of the participants expressed problems of stiffness of affected side caused him to struggle,

"I used to cook and cleans my house now my situation of my hands is too heavy to hold, something and I always use two hands to hold bucket of water, look how I am holding see my hand is too heavy.. both my hands look weak and I can try but it take me long time, my muscles is a bit Stiff" (P10).

Similarly, a study conducted by Pollack et al. (2002), Palajac et al. (2006), and Mayo et al. (2000) who found that stroke survivors had problems in domestic activity limitation such as 45% of the survivors had difficulties in cooking, 25% of the survivors had problems in house cleaning, and 30% of the survivors had weakness in their arms and had difficulties in washing by themselves.

It is important to note from the findings of different studies that the roles of professionals involved in stroke rehabilitation may motivate and improve the ability of patients to undertake domestic care activities. Hence, it can be concluded that the occupational therapist and physiotherapist could be appropriate for such challenges.

6.2 Participation restrictions

Refers to the problems stroke survivors encounter when re-establishing previous, or developing new, life and societal involvements (e.g., problems returning to work due to mobility and cognitive issues with participation) (WHO, 2001). The participants highlighted their inability to return to previous work, inability to participate in leisure activities, hobbies such as religious activities, which include prayer, singing, and difficulties in church participation activities.

6.2.1 Inability to return to work

Inability to return to previous work was highlighted by four participants among stroke patients, as explained:

“I am treasurer and I had a lot of things which I used do, for returning to my job is a problem, because my affected side I quite weak See my children they still need my support for them to be at school I don't know if I could be back to normal...with my disability” (P8).

One of the participants who was a farmer felt he would lose his ability to work again,

“I was a farmer and I used to work together with my wife and now they are working alone, I am not helping them to cultivate my field because of my hand were very stiff and weak” (P10).

One participant felt unhappy because of not being able to drive again,

”I was driving but you see now I couldn't even touch a steering to drive... because of this spasm and my strength, Even my legs look this contraction and I had lost my hope again on returning to drive” ... (P6). “I used to teach and write see how bad I am now... My students like my writing see all; my situation return to the work is surprising in this situation (P5).

The results indicated that inability to return to previous work was specified by the majority of the participants, and is commonly associated with weakness with or paralysis in the legs, arms or problems with one side of the body. Our findings were similar to studies conducted by Rhoda (2010), Hasan, (2009), and Urimbeshi, (2009) who found that participation restrictions, which

were expressed, include inability to return to the previous work and difficulties in participation in religious activities.

The current study findings were in agreement with the study conducted by (Hicks, 2007) which found that loss of employment after acquiring disability is another major factor contributing to the economic impact of disability. This was mainly expressed as a problem amongst male participants, which could be due to the fact that men are usually the breadwinners in their families and loss of these roles may have an agonizing impact on their lives.

There was a high rate of unemployment among the participants of the present study. These results follow the trend in previous studies regarding employment among persons with disabilities, for instance studies by Dowswell et al. (2000), Rhoda and Hendry (2003), Green et al. (2009), and Ward (2003)

The author sees the implication of not been able to return to work could lead to poverty and dependence, which in turn impact family members psychologically. The health professionals can educate caregivers and employers about how to help stroke patients without allowing patients to become too dependent so they can perform certain jobs (disability is not always inability). The health professionals and government sector should recognize stroke patients as to be given special support.

6.2.2 Inability to participate in leisure activities

Participants highlighted their inability to participate in leisure activities such as religious activities, and challenges related to the inability to walk to church, enjoy free time, and partake in news and TV. This was highlighted by the five stroke patients:

“I had lost my hobbies to look for news in TV, and Magazines since has attack, because I can’t sit in one position for quite sometimes I lost even interest” (P4).

Religious attendance limitations were also expressed by many of the participants,

“I am a catholic church, but after getting sick I have never been to church for prayer.. Because of my muscles weakness all the time I intended to try but I couldn’t manage to go. Sometime if my uncle is around he used to help me by his car” (P4).

“I go to church less than usual because I can’t reach by myself I have lost my Christianity since I got sick I went to church few time. It is only possible when my husband is there and brings me to church by car” (P8).

“I lost my hobbies to participate on singing but now look how am I can’t even talk properly because of my communication” ... (P6) .”Since I had stroke I couldn’t even look for TV, and football, and news from magazines I just I asked my son what is new for dayBecause I felt dizziness... unlike to see “ (P8)

Great distress was associated with the loss of hobbies and activities that had previously been a source of pleasure and achievements. Inability to resume roles such as family income provider, protector, carer for and parent, driver or decision maker were also difficult issues, as reported by one participant,

“As a man, I was the one to provide for my family and I had a young family at the time. I felt inadequate and in those days, there were a lot of home invasions. I thought how will I protect them, it is my role to protect them... absolutely, I used to play football but... because of stroke I loss..And have no interest on that at all” (P5).

Decrease in participation in religious activities is common following stroke. The findings of the current study were consistent with the study conducted in UK, by Dowswell et al. (2000), which reported loss of participation in religious activities. The findings of the study were also consistent with those conducted in Malaysia by Mihanjlo et al. (2002), which aimed to examine specific factors associated with inability to participate in religious activities. 66% of the stroke patients were depressed and a level of moderated to severe depression was correlated with advance in age. Therefore, the author concludes that there is need to set up rehabilitation programs addressing the limiting factors to enhance the participation in various social activities by stroke survivors.

6.3 Environmental barriers

Contextual factors include the unique personal and environmental variables of each stroke survivor that influence how his or her disability is experienced, as well as access to health care. Personal factors include internal attributes (e.g., sex, co-morbidities, ethno-cultural background), whereas environmental factors are external attributes (e.g., family support, social attitudes, architectural barriers, healthcare resources). The environmental barriers are common factors that inhibit or facilitate a person's ability to participate in activities or spend more time to do so.

The views of the participants that emerged during the interviews are grouped into themes: physical barriers, social barriers, attitudinal barriers, restriction from infrastructure, and inaccessible to physiotherapy services.

6.3.1 Physical barriers

The expressions from the two participants were highlighted that physical barriers, were the one of the challenges facing the stroke patients. Sub-themes that emerged during interview related to physical barriers include inaccessible pathways and toilets:

“I stay at home, I cannot go anywhere unless I have to get something to on my hand...when I am in wheel chair I cannot push myself because of stones and stairs within the ways I used” (P9).

“I couldn't go up... Road because I think it's a bit steep. It would take ages getting up there and where do I go then? You're at the main road, all the people rushing by. One knock and I'd lose my balance and I'm down again there see. They say get out and walk but it's easy for them to say get out and walk”(P8).

A physical barrier refers to the obstacles that stroke patients face in natural surroundings such as rough ground, stones, hills and stairs. People living with stroke may experience barriers that may negatively or positively influence their disability (WHO, 2001). One of these environmental factors is the aspect of physical geography. In this particular instance rehabilitation professionals might prevent disability by altering an environmental situation by using adaptive equipment or modifying the environment. The physical barriers were common problems which associated with

the loss of independent walking following for individuals with stroke and these include uneven ground, stair access, stones, mountainous etc. Walking could be extremely difficult especially if they have to climb steps or walk through narrow doors. Correspondingly, a study conducted in Canada by Reid (2004) reported barriers to occupational performances for individuals with stroke and these include uneven ground, stair access, stones, etc.

The author suggests that, in order to reduce stroke strain, early rehabilitation strategies should involve the services of a caregiver, follow-up of therapist, and health care professionals. This could motivate and reduce the physical barriers. Furthermore, in order to avoid recurrence injury, stroke patients may need assistive device, personal assistance

6.3.2 Social barriers (integration)

Social barriers refer to the obstacles or difficulties that stroke survivors might encounter in the community, such as lack of support from family, society and the community. The results of the present study indicate the prevalence of social barriers as stated by most participants. The participants described the decreased social interactions when asked if there was any change in their social relationships. Five participants expressed their feelings,

“People look at me strange, because sometimes I get a lack of feeling in my legs and I trip over... I say I’m fine not because of disability... but it does worry me, I don’t feel that is lack of confidence otherwise I wouldn’t go out at all, I just accept that situations sometimes”
(P7).

“All my relatives have turned away from me....they do not care for me I look after myself because I don’t have anyone to take care of me” **(P5).**

“At beginning people were highly willing to help me, I was being helped by relatives and volunteers but as it took a long time, they became tired, and often they no longer come to visit me” **(P2).**

“Sometimes people used to come and help me to go church to pray and this was for two years. After that they stopped and I no longer assisted or support by any one in church.”

(P6).

The participants reported that support from other family members was too little to help them to survive:

”I felt like some people or my family now they are about to be tired not like before they are been assisting for me but now slowly things has changed considerably they become slow.”

(P8)

The majority of participants across the study appeared to experience feelings of increasing social isolation, social withdrawal and altered relationships with both families and friends. Similarly the study conducted by Davidson & Young, (2008) found that Social barriers are common challenges after stroke following the decreases in visits of relatives or family or friends that was associated with not being able to walk independently or paralysis. These findings were consistent with those of Ch’Ng et al. (2008) who reported lack of social support as a frequent experience of stroke survivors could lead to the support becoming less and could diminish as the period of their disease became longer. Losing respect in the community is very common after stroke. Decrease in social interaction was also reported in other study conducted by (Burton, 2000) especially getting out of house, being separated by neighbours at homes and take part in the previous activities. Environmental barriers could also lead to be source of being losing the community respect because of attitudinal stigma, being disabled after stroke is very important.

6.3.3 Attitudinal barriers

Many communities think that stroke is caused by the individual behaviour and attitude, equating it as deserved punishment from God. This was signified by the statement of one participant:

“I used to try see my garden but when I go out by stick people see me... the major problem is when others see me from my walking they understood me as a sinner or punished from God”

(P10).

Attitudinal barriers refer to negative attitudes perceived by individuals to be facing, that could be from family members, health care professionals, personal providers, and the community. (WHO, 2001). The study findings revealed that participants reported attitudinal barriers related to people's negative attitudes, although not frequent. These attitudes varied from people who said that the stroke patients were being punished by God and even those who felt happy after their rivals suffered a stroke.

The negative attitudes perceived by the interview participants were similar to qualitative findings in a study conducted by Hare et al. (2006) in the UK, which revealed that participants perceived negative attitudes due to the experience encountered with health care workers or due to their own self-perception and how they think they are viewed. The findings of the current study can easily be related to (PWD) in Tanzania, and these are particularly strong towards those with severe disabilities. The negative attitudes as experienced by the participants could result in social separation for people with stroke, and these may start themselves to avoid intentionally meeting on other people.

6.3.4 Restriction from infrastructure

Some infrastructure like toilets, bathrooms and others are not user-friendly to stroke patients. Three participants highlighted the fact that their stroke had forced them to reassess their living arrangements in terms of either the entry way to toilet or the area they live in. A few respondents had made structural alterations to their toilets. One of the participants stated that,

“To me toileting and bathing is the major problems when I use to go to the toilet, mostly if I am alone here I must put something to support unless I couldn't able to do that because to squat for me is a challenge... due to that my leg is weak and stiff” (P3).

Another informant expressed that,

“Bathroom, accommodation is new now I have change to reconstruct every situation after stroke is not easy, is like I have start every things newly...because of disability I have from stroke”(P9).

While another informant reported that,

“We have the toilet built on, as you can see we have a little house so there’s no room downstairs to put anything in..... and of course a little house isn’t, well like this old place isn’t built for people who cannot walk very well. And we have had the drive rebuilt because we had tarmac before, but it had potholes in it so we’ve concreted it to make it safer for me to walk on” (P2)

The findings revealed that the inaccessibility to toilet facilities is a common barrier following stroke. This could be associated with physical disabilities and loss of independent walking, and that the physical geography around the house may be unhelpful. Similarly, the findings of study conducted by Steid (2004) found that some stroke survivors may be dependent on others for help with toilet tasks..

The inaccessibility to toilets as expressed by the participants in this current study was because participants depend on self-care activities with patients being more psychologically affected owing to their status of dependence. In nature Haydom areas have more mountains. The researcher observed that steep steps in particular made climbing difficult. Therefore, the physical geography proved to be a barrier instead of a facilitator. As the majority of families do not have modern toilets, (outside the home place) therefore rehabilitation of stroke patients here will be more complex needing more intervention.

Therefore, the author finds that physiotherapists and occupational therapists can help by providing mobility, transfers and dressing assistance. A home visit and assessment in the patient’s home and bathroom is crucial prior to discharge from hospital. Solutions like bedside commodes, urinals, grab rails, toilet frames, raised seats may have to be provided to promote independence.

6.3.5 Inaccessible to physiotherapy services

Stroke patients ideally are supposed to be revisited frequently by medical professionals but this rarely happens because of inadequate human resources. This was stated by five participants,

“During discharge from the hospital they promised that they could visit me, but since then, nobody has come at all, which is a bit crazy because when you first come out I think that’s the time when you really need physiotherapy” (P4).

“ So I’ve got to try and sort of do things for myself..... but the problem with that is.... you know it is like when I was doing the walking and stuff, you don’t know if you’re doing anything wrong or if you’re doing wrong exercises to try and correct what you’ve got wrong” (P8).

“No, no. That’s why I say I practice my walking... Because I still feel the more I do, the easier it will be... I’m sure they’d come round refer me to somebody that could help me but I don’t think there is any one” (P5).

Majority of participants raised their problem with regards to continue with physiotherapy sessions at the hospital post discharge, as this was not accessible. This was expressed with regards to the limitations in walking and difficulties in using public transport. One of the participants said that,

“Yes, I mean, with hindsight’s, it would obviously have been better for me to stay in hospital place... because I would have had access to getting physiotherapy treatment every day, but I realize that they needs the bed. I am not saying they were trying to get relieve me, they weren’t” (P2).

One of the participants expressed a good progress after some sessions who said that,

“Seeing the physiotherapy made me.... Look... at things differently, accept that I cannot do as much as I would like to at the moment and maintain hope that this will change and progress well” (P4).

The finding of the study was in agreement with other previous findings that suggest physiotherapy is a major benefit for stroke survivors. Green et al. (2009) established that stroke

patients in South Africa Private Rehabilitation Units are discharged from the hospital with a low functional status. Patients in that study had a hospital stay of 30-34 days. These studies indicate that patients from private and government hospitals are discharged before they are functionally independent. It was generally found that the sooner the patient can be discharged following a stroke, the sooner the community reintegration process can commence. However, early discharge is only beneficial if there is a support system, and an opportunity for continued rehabilitation. In a study conducted by Pound, et al. (2004) physiotherapy was appreciated for the following reasons; Firstly, it was believed to bring about functional improvement. Secondly, in the context of stroke the rehabilitation component was valued because it was perceived to keep you moving, keep you busy. Rehabilitation programs at home were also valued for the structure they gave to each day. Thirdly, rehabilitation was a source of advice and information, and fourthly, they were a source of faith and hope (Pound et al., 2004). Similarly, a study conducted by Stewart, (1999) has shown that if a multidisciplinary team exists in the community, rehabilitation services may be successfully provided in outpatient settings and patients can be discharged from the inpatient setting early.

Post discharge rehabilitation, especially home based rehabilitation results in more functional recovery after stroke (Mayo et al., 2000). Furthermore, Cifu, (1999) observed that “current literature is too limited to allow an assessment of the relationship of specific type of in-patient rehabilitation services after stroke and functional outcome”. According to Evans, (2003), inpatient rehabilitation services are effective in improving short-term survival, functional ability. Moreover, Evans (2003) found a lack of long-term benefits and suggested that therapy be extended to home or other settings, rather than being discontinued at discharge.

In Haydom, there are neither rehabilitation services within the community setting, nor follow-up treatment for stroke patients after discharge. During acute rehabilitation in hospitals the focus is more on improving function and independence, preparing the stroke survivor and his/her carers for life after discharge to their home.

6.3.6 Uncertainty about future

Uncertainty about the future was a theme that arose from the interviews. This was highlighted by some participants expressing fear about how the future would be, as one participant reported;

“Even now I’m..... not sure whether one should expect another stroke or whether you should accept that it’s behind you and it’s unlikely to happen again, the biggest problem is no knowing what the future holds; Other than that I can cope with the I’d be quite happy to cope with those little things for the rest of my life, but it’s uncertainty of what might happen in the future... Yes, have the doctors talked to you about that... No. they haven’t mentioned it. Perhaps they feel that I quite lucid and comfortable with it but I do feel a little bit uncertain” (P4).

Lack of information regarding the changes of life after stroke made one of the participants unhappy, he expressed that,

..“You know..... That is why ... I’mworried about doing things myself in wrong and making the situation worse as I’ had lack of information about the condition of stroke, and what to do about it and instead of progress I might worse my disabilities..... I am unhappy that they couldn’t tell me enough clearly” (P10).

The results showed that uncertainty about the future was reported by few participants, and although it was not one of the objectives of the study, it is nevertheless noteworthy.

The interview findings are in agreement with the results of a similar qualitative study conducted with stroke patients (Cott, Nadine & Ong, 2007) the results demonstrated that participants who suffer stroke feel insecure owing to a lack of social support from their employers and even from the responsible government departments. The anticipated termination of the current medical insurance cover subsequent to their retirement from work is one of the sources of their worries. This is an important consideration for rehabilitation therapists, as a previous stroke is reported to be associated with a poor functional outcome in future (Kwakkel et al., 2004). Rehabilitation has an important role to place with this population (relatives). Given the impact on the daily lives of relatives, a family-centred approach would appear to be vital in the future and it is imperative to

consider the ethical issues that may be associated with this approach in order to propose potential solutions that could generate beneficial changes in practice.

6.4 Discharge challenges

The participants highlighted a number of challenges after discharge for continuing with physiotherapy treatment as an outpatient. The general sense gained from participants was non-satisfaction that there was nothing done for further treatment for living with stroke and disabilities, other than to go home and do physiotherapy themselves. This was highlighted with three participants who spoke that;

“You know I have told with one of the healthcare that your diseases has no cure you go home and do exercises at home.....because I felt of my disabilities and I became irritated to them.....but I feel to sustained” (P10).

One of the participants kept on doing physiotherapy at home and expecting good progress and reported that;

“I hope that I’ll be able to walk but I doubt it very much, that I’ll ever get off on my own. The doctor thought I might make everything alone recovery and I’m hoping for that”. (P7).

“Some of the provisional information is motivating..... But others sometimes like one he told me that go home and look for another means of treatment.....he mean traditional healers.....oh I was so discourage from that moment.....but my faith is big I believe God is able to do” (P9).

Expectation of the participants was, however, more usually expressed as hope tinged with realism,

“But they didn’t expect me to make a full recovery so I’m just trying my best” (P7).

The WHO (2001) stated that discharge challenges are a common problem following the required modification of new environments. These are a common problems following after stroke and could be associated with lack of physiotherapy training as community rehabilitation services. The participants expressed a need of rehabilitation in community setting aimed at reducing the

impact of disability. Similarly, a study conducted by Hellander (1999) found that rehabilitation challenges include all measures aimed at reducing the impact of disability from an individual, enabling him or her to achieve independence, social integration, a better quality of life and self-actualization. Furthermore, rehabilitation includes not only training of stroke patients, but also interventions in the general system of society, adaptations of the environment, protection of human rights and empowerment (Dewey, Sherry & Collier, 2007).

6.5 SUMMARY OF QUALITATIVE RESULTS

This Chapter presented the results of the qualitative research according to the Research Objectives. Research Objective Four: To explore the challenges patients experienced with regards to activity limitations, participation restrictions, and various environmental factors. Limitation in walking activities were described by the majority of the participants. Some of the participants interviewed reported the degree of total loss in walking and decrease in independent in walking. The participants exposed the lived experience as they felt threatened for the number of them having neither rehabilitation strategies nor follow-up to the community so they felt isolated and being bed-bound with no any assistive device like wheelchair. The decline of respect in the community and decreases in number of visitors result in depression and stroke survivors becoming psychologically affected. Furthermore, Contextual factors include the unique personal and environmental variables of each stroke survivor that influence how his or her disability is experienced, as well as access to health care. Personal factors include internal attributes (e.g., sex, co-morbidities, ethno cultural background), whereas environmental factors are external attributes (e.g., family support, social attitudes, architectural barriers, healthcare resources). In regards to the above constraints the majority of the participants had little or no help from the community or the government. They all depend on family members to take care of them.

In the final chapter, a summary, limitation of the study, its conclusion and recommendation are presented.

CHAPTER SEVEN: SUMMARY AND RECOMMENDATIONS

This chapter presents a summary as well as the limitations and conclusions of the current study. Thereafter, the significance and recommendations of the current study will be outlined as well as suggestions for future research.

7.1 SUMMARY OF THE CURRENT STUDY

The aim of the study is to be able to define important or problematic areas which might be changed or influenced in a way that hopefully will contribute to a better understanding of the profile and challenges experienced by stroke patients, and to result in better treatment and rehabilitation of stroke patients admitted at HLH. A total of 128 stroke patients were used to analyse data regarding medical profile and rehabilitation process of stroke patients admitted to Haydom. The quantitative retrospective method was used to analyse the data with data gathering instruments which have been used by other relevant studies, in order to answer the first three research objectives. Additionally, the in-depth qualitative interview approach was employed to answer research objective three.

The quantitative results indicated that the mean age of the study population was 57.7 and the age is markedly younger than that reported in other studies in developed countries, but is similar to those reported in developing countries. It was also found that (52.3%) were females and 47.7% were males. The majority of the study population (82.2%) were farmers before stroke. As is well-established in the literature, the most prevalent clinical features found in the present study were emotional, cognitive, vision and speech impairments. The most prevalent risk factor for stroke in the sample is hypertension, which corresponds to existing literature. Furthermore, the mean stroke-admission interval was found to be 1.2 days and this is longer than what was recommended in the literature. The mean length of hospital stay was 12.2 with (SD= 4.145), ranging from 0 to 88 days, and this is too low for both acute treatment and rehabilitation.

The in-depth interviews were used to capture data regarding challenges post-stroke. The qualitative findings revealed, activity limitations perceived by the participants included limitation in walking, being depending on others i.e. self-care activities, domestic care activities,

losing the respect in community e.g., participation restrictions, and discharge challenges associated with psychological status and rehabilitation strategies. The findings about these challenges discovered in the current study are similar to those described in other literature.

7.2 LIMITATIONS OF QUANTITATIVE AND QUALITATIVE RESEARCH

This section seeks to highlight the limitations of both the quantitative and qualitative phases of the study.

Quantitative study limitations:

A retrospective study is open for misinterpretation of data and it is also difficult to be assured that all cases were collected. Hospital records can be incorrect regarding diagnosis and other relevant information. Due to this fact, we had some missing data, and 10 % of the possible participants had to be excluded. Missing data will decrease the sample size (Creswell, 2003). This number is acceptable, though. One of the limitations was the hospital-based design, which is not representative of all stroke patients occurring in the community. Nonetheless, our inclusion criteria was restricted to the patients who had brain imaging confirmed strokes making it to the best of our knowledge to the first of this kind in our setting.

In the literature there is no documented study conducted in Tanzania regarding the profile and challenges experienced by stroke patient admitted to hospitals. This might have influenced the researcher when choosing variables and methods to build up the current study.

Qualitative study limitations

In qualitative phase it was clear that some stroke patients, who had severe cognitive or speech problems, were not included in the interviews and this may have limited the qualitative sample to the small number of 10 participants. Another selection bias is that the researcher had to choose patients available to him, like the distance to travel to do the interviews, and if they were able to use public transport or not. Some of the patients also passed away before the follow-up. In general, qualitative methods are criticized for being subjective and difficult to interpret. On the other hand, they give us the possibility to explore deeper into experiences of stroke patients. The

discussion of the current study was difficult because of the few similar studies in the literature regarding profile and challenges experienced by post-stroke patients. In the end, only one similar study conducted in developing countries about the profile and challenges experienced by stroke patients was found.

7.3 SIGNIFICANCE OF THE STUDY

The findings of this current study are important for developing information regarding profile and challenges experienced by post-stroke patients. The availability of data regarding the profile and challenges for stroke patients would provide the effective management that could be used to create services for them. This information could be used to make treatment, prevention and rehabilitation guidelines and to promote health information to the public regarding risk factors and the signs and symptoms of stroke. The adequate training of health providers and the use of guidelines could also reduce in-hospital complications, morbidity and mortality, providing optimal potential for improved follow-up into the community such as Haydom. Furthermore, as expected it would emphasize the importance of setting up rehabilitation programs for stroke patients admitted to Haydom. This information could be used by health care professionals to initiate appropriate strategies for the prevention as well as proper effective and efficient education and management for post-stroke patients. We also think that this study provides data that will be of importance to others who are making stroke protocols and make important references for other stroke researchers. Consequently, it supports already existing information about stroke in developing countries, especially in Tanzania. This could raise the availability of stroke information and awareness among the target society and it could also facilitate early hospital management and positive response to post stroke management. In addition, it could also enable the foundation and implementation of new rehabilitation programs and proper follow-up to the community for the stroke patients.

7.4 CONCLUSION

The findings of the research reveal that stroke in Tanzanian patients occurs at a relatively young age, and that frequency of intra-cerebral haemorrhage is higher than that reported in developed countries. The clinical presentations and risk factors are similar to those in other studies. The qualitative findings revealed that the stroke patients had problems with limitation of activity, participation restrictions, and environmental challenges. They also expressed uncertainties as a result of a lack of knowledge about stroke and its effects, and discharge challenges relating to rehabilitation. These challenges should be addressed in the process of management of patients with stroke in the research setting

7.5 RECOMMENDATIONS

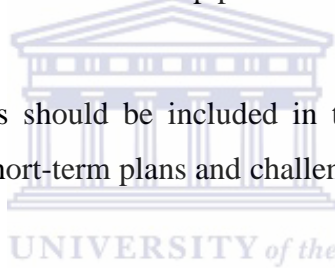
Based upon the findings from the current study, a number of important recommendations are made for stroke treatment in the research setting, in similar settings in sub-Saharan Africa, and recommendations for health policy.

The current study recommends that any model of community-based stroke care in rural settings, such as Haydom in Tanzania, should include a system of stroke education for caregivers and patients, and should implement structures that strengthen the level of Home base care (HBC) and training. Awareness of stroke and cardiovascular risk factors (particularly hypertension) needs to be fostered by improved community education. Nurse practitioners, therapists, and home-based carers could play an important role in carrying out basic and fundamental tasks, such as checking blood pressure and monitoring treatment and compliance after discharge from hospital. In-service training of rural-based health care professionals in the protocols of acute stroke management could also reduce in-hospital complications, morbidity, mortality, and provide optimum conditions for improved health outcomes following discharge into the community. Without adequate health care services available for rehabilitation in such communities, caregivers are the most likely candidates to adopt this role and could be trained to be more active in the rehabilitation process. While poverty and gender inequality remain long-term problems in health care, these simple interventions can improve stroke outcomes and relieve caregiver strain in rural settings such as Haydom. It can be concluded that stroke patients generally do not have

functional independence on discharge from the hospital, and can be expected to have functional independence post discharge provided they receive post discharge rehabilitation.

The specific recommendations made by the current study, based on research results and analysis are:

1. Discharge planning for stroke patients should begin on the day of admission and should be a systematically planned by health professionals with full participation, coordinated by health provider team work because as the findings of this study revealed that survivors had limitation in different live experienced in turn this will need personal care activities.
2. Focus on how the rehabilitation can continue outside the hospital after discharge, for example in the community health care facilities.
3. A team of health professionals could follow up patients in the community to achieve a better stroke outcome.
4. Stroke patients and caregivers should be included in the process of discharge and fully informed about the long and short-term plans and challenges that might be important in their home surroundings.
5. The Ministry of Health should increase the number of health professional workers in the rural hospitals, particularly doctors, physiotherapists, occupational therapists, speech therapists and nurses.
6. The education program on prevention of risk factors for stroke among the public should be strongly recommended mostly for younger ages e.g. primary education on prevention HIV/AIDS, hypertension and smoking.



7.6 RECOMMENDATIONS FOR FUTURE RESEARCH

The findings from this study have revealed a number of topics in need of further research. In terms of the specific factors applicable to the setting and the context in which the study took place, the existing literature does not fully explore issues in these settings.

Future studies could certainly investigate reasons for the younger age profile of the stroke patients found in the present study, and whether this is any way related to, or influenced by, the HIV/AIDS pandemic. Further studies are also recommended on a form of community rehabilitation that involves care givers, local health- centre, and the hospital in a co-operative relationship. It is important to explore the specific risk factors of stroke further, and the transmission of public information about these risk factors in a rural area like Haydom. Stroke patients in rural communities pose specific challenges for post-stroke treatment, which would indicate the necessity for focusing on the experiences the post-stroke patients when they come back to their community, for example the lack of participation and social reintegration into the community.

Another important area of future research is the accurate and comprehensive quantifying of the magnitude of change in health and function among persons with stroke as a result of barriers to their normal everyday functioning, such as toileting, inaccessibility to public transport. The results of this research could be used to design guidelines for treatment of post stroke patients, and a reduction of these barriers as well as general guidelines for prevention, treatment and rehabilitation of stroke survivors, particularly if these serve to reduce risk factors for stroke.

Lastly, it is recommended that further studies of epidemiological factors such as incidence, prevalence and mortality concerning profile for stroke be undertaken to see if this will change and come to resemble the stroke profile in developing countries.

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APPENDICES

Appendix A: Data gathering instrument

APPENDIX A

DATA GATHERING INSTRUMENT FOR MEDICAL RECORDS REVIEW

A. DEMOGRAPHIC DATA

I.1. Age:.....

I.2. Gender: 1. Male
 2. Female

I.3. Marital status: 1. Single
 2. Married
 3. Living Together
 4. Sepatated
 5. Divorced
 6. Widowed
 99. Missing

I.4. Occupation:.....cr "99": Missing

B. MEDICAL DATA

B.1 Clinical features:

I.5. Type of the present stroke: 1. Ischemic
 2. Hemorrhagic
 3. Association of both types
 99. Missing

I.6. Occurrence of coma: 1. Yes
 2. No.
 99. Missing

I.7. Cognitive impairment: 1. Yes
 2. No
 99. Missing

I.8. Vision impairment: 1. Yes
 2. No
 99. Missing

I.9. Speech impairment: 1. Yes
 2. No
 99. Missing

I.10. Emotional impairment: 1. Yes
 2. No
 99. Missing

I.11. Muscle tone impairment: 1. Flaccidity
 2. Spasticity
 3. None (Normal)
 99. Missing

I.12. Side of body impaired: 1. Left side
 2. Right side
 3. Both sides
 99. Missing

- 1.13 Incontinence** **1. Bladder incontinence**
 2. Bowel incontinence
 3. Both bladder and Bowel incontinence
 4. None
 99. Missing

- 1.14. Sensation Impairment.** **1 Yes**
 2 No
 99. Missing

- 1.15 (B.2) Risk factors related to stroke:** **1. Hypertension**
 2. Diabetes
 3. Cardiac failure
 4. Atrial fibrillation
 5. Transient Ischaemic Attack
 6. Previous Stroke
 7. Smoking
 8. HIV/AIDS
 9. None

C. REHABILITATION DATA

1.16 Stroke onset-admission interval (in days) or 99.Missing

1.17 Length of hospital stay (in days) or 99.Missing



I.18. Has the patient received physiotherapy after admission? 1. Yes
 2. No

I.19. Time of commencement of physiotherapy since admission (in days):or
"88": Not applicable

I.20. Duration of physiotherapy (in days):or "88": Not applicable

I.21. Total number of physiotherapy sessions:or "88": Not applicable



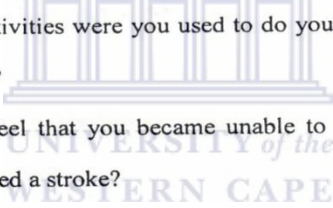
Appendix B: Interview guide in English

APPENDIX B

INTERVIEW GUIDE TO EXPLORE THE CHALLENGES EXPERIENCED BY STROKE PATIENTS

Please tell me about any problems you are having since you got stroke.

PROBES:

- 
- Which activities were you used to do yourself, and which have been affected by stroke?
 - Do you feel that you became unable to participate in any events after you experienced a stroke?
 - Do you feel that your relationships with your family/other people have changed after the stroke? If so, how?
 - How do people react towards your disease?
 - Does your family/friends/society accept you?
 - Are you accepted and supported by those around you?
 - Do you have any obstacle in your daily life, or when you are walking if you can?

Appendix C: Interview guide in Kiswahili

MWONGOZO WA MAHOJIANO KUHUSU CHANGAMOTO WANAZOZIPATA WAGONJWA WA KIHARUSI

Ninaomba unieleze matatizo yoyote ambayo unakabiliana nayo tangu ulipopatwa na ugonjwa wa kiharusi.

MASWALI YA UTAFITI

- Ni shughuli zipi ulizoweza kuzifanya ambazo zimeathiriwa na kiharusi?
- Unahisi kuwa huwezi kushiriki katika tukio lolote baada ya kupatwa na kiharusi?
- Unahisi kuwa uhusiano kati yako na familia yako au watu wengine umebadilika baada ya kupatwa na kiharusi? Kama ndiyo, ni kwa namna gani?
- Watu wanakuchukuliaje/wanakupokea vipi tangu ulipopatwa na kiharusi?
- Je, unakubalika na kupewa ushirikiano na watu walio karibu nawe?
- Kuna changamoto zozote za kimazingira unazokumbana nazo? Mf.

Ngazi/vipando, vyoo n.k.

(MKURUGENZI
TAASISI YA TAALUMA ZA KISWAHILI

This is to certify that this is
a true translation of the English
version - Interview Guide

Dr. Pendo S. Malangwa

Appendix D: Parental/Guardian consent form in English

APPENDIX C

UNIVERSITY OF THE WESTERN CAPE PARENTAL/ CAREGIVERS CONSENT FORM

Title of Research Project: Profile of and challenges experienced by stroke patients admitted to Haydom Hospital in Tanzania

I have been asked to give consent for my patient to participate in this research study which will involve him/her completing an interview. I understand that he/she will also be asked to give permission and that his/her wishes will be respected. I have been informed that the risks are minimal and may include only emotions, and in this case counseling will be provided to assist him/her. I am aware that there may be no benefit to either my patient or me personally. I have been provided with the name of a researcher who can easily be contacted using the number I was given for that person. I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily for my patient to participate as a participant in this study and understand that I have the right to withdraw him/her from the study at any time without in any way affecting our care.

Name of Parent/ Caregivers.....

Signature or Thumb print of Parent/Caregivers

Date (Day/month/year)

I have accurately read or witnessed the accurate of the assent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individuals have given assent freely.

Name of researcher.....

Signature of researcher.....Date Day/month/year.....

A copy of this Assent Form has been provided to the participant.

Parent/Caregivers has signed an informed consent



Appendix E: Participants consent form in English

APPENDIX D

UNIVERSITY OF WESTERN CAPE

PARTICIPANT CONSENT FORM

Title of Research Project: Profile of and challenges experienced by stroke patients admitted to Haydom Mission Hospital in Tanzania

The study has been described to me in a language that I understand and I freely and voluntarily agree to participate. I agree to be audiotape during my participation in this study. My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me any way.

Name of participant.....

Signature/thumb print of participant.....

Date Day/Month/year.....

I have witnessed the accurate reading of the assent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given assent freely.

Name of
witness.....

Signature of
witness.....

Date
Date/month/year.....

I have accurately read or witnessed the accurate of the assent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individuals have given assent freely.

Name of researcher.....

Signature of researcher.....Date Day/month/year.....

A copy of this Assent Form has been provided to the participant.

Parent/Caregivers has signed an informed consent



Appendix F: Research assistant confidentiality agreement form

APPENDIX E

UNIVERSITY OF THE WESTERN CAPE

RESEARCH ASSISTANT CONFIDENTIALITY AGREEMENT FORM

Title of Research Project: Profile of and challenges experienced by stroke patients admitted to Haydom Mission Hospital in Tanzania

I the research assistant, the interview with the research participants. I agree to

1. Keep all the research information shared with me confidential by not discussing or sharing the research information in any form or format (e.g. including but not limited to tapes, transcripts) with anyone other than the Researcher.
2. Return all research information in any form or format (e.g. including but not limited to tapes, transcripts) to the Researcher when I have completed the research tasks.
3. After consulting with the Researcher, erase or destroy all research information in any form or format regarding this research project that is not returnable to the Researcher (e.g. including but not limited to information stored on computer hard drive, note books)
3. Maintain anonymity and confidentiality of the study participants.

.....

(Name)

(Signature)

Research Assistant

.....

(Name)

(Signature)

(Date)

Researcher

Appendix G: Permission to conduct the study from the Director of Haydom Lutheran Hospital, Tanzania

**University of Western Cape,
Private bag x 17, Bellville 7535, South Africa,
Tel: +2721-959,
Fax: 2721-959.
29/11/2010.**

**Medical Director,
Haydom Lutheran Hospital,
P. O. Box Mbulu
Manyara
Tanzania.**

Dear/ Sir,

Ref:

**APPLICATION FOR PERMISSION TO CONDUCT RESEARCH TO HAYDOM
LUTHERAN HOSPITAL FROM DECEMBER 2010 UP TO JANUARY -2011.**

The heading above concerned kindly I request your permission to conduct a research study in your institution.

I am a student of Physiotherapy at University of Western Cape –South Africa; as a requirement for awarded of (Full thesis). Master in Physiotherapy.

The subject of my study is **THE PROFILE AND CHALLENGES EXPERIENCED BY STROKE PATIENTS ADMITED TO THE HAYDOM MISSION HOSPITAL TANZANIA.**

The Significant of study will be used to give more information about post stroke patients and Challenges they experienced.

I hope my request will be considered

You're Sincerely.

AZARIA SIMON.

COPY:

- **MEDICA DIRECTOR H.L.H.**
- **ASSISTANT MEDICAL DIRECTOR H.L.H**
- **ADMINISTRATION H.L.H**

Appendix H: Parental/Guardian and Participant information sheet in English



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959, Fax: 27 21-959

E-mail: arhoda@uwc.ac.za

Project Title: The profile and challenges experienced by stroke patients admitted to the Haydom mission hospital, Tanzania.

What is this study about?

This is a research project being conducted by Simon Azaria at the University of the Western Cape. We are inviting you to participate in this research project because you have suffered from stroke. Such a research will give the information about profile and the challenges experienced by stroke patients so the information you provide to us will be of great importance in this study. The purpose of this research project is to determine the profile and challenges experienced by stroke patients. The study has been described to me in a language that i understand and i freely and voluntarily agree to participate.

What will I be asked to do if I agree to participate?

You will be asked to audiotape recorded and you will be interviewed

Would my participation in this study be kept confidential?

We will do our best to keep your personal information confidential. To help protect your confidentiality the research information shared will be confidential and not to discuss with anybody and kept in cabinet and after the research all the information will be destroyed. if we write a report or article about this research project, your identify will be protected to the maximum extent possible.

What are the risks of this research?

There are no known risks associated with participating in this research project.

What are the benefits of this research?

This research is not designed to help you personally, but the results may help the investigator learn more about the profile of stroke patients and challenges experienced. We hope that, in the future, other people might benefit from this study through improved understanding of stroke profile and challenges they experienced.

Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

What if I have questions?

This research is being conducted by Simon Azaria a master's physiotherapy student at the University of Western Cape. If you have any questions about the research study itself, please contact

Simon Azaria

Haydom Lutheran Hospital

P.O BOX 9000 Mbulu District

Manyara Region, Tanzania

Tell phone +255786134435

Cell phone +255 (0) 27 2533194|5

Fax: +255 (0) 27 2533734

post@haydom.co.tz or simonazaria@yahoo.com or arhoda@uwc.ac.za

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Head of Department: Prof. J. Phillips

Dean of the Faculty of Community and Health Sciences: Prof. R. Mpofu

University of the Western Cape

Private Bag X17

Bellville 7535

This research has been approved by the University of the Western Cape's Senate Research Committee and Ethics Committee.



Appendix I: Parental/Guardian and Participant information sheet in Kiswahili



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959, Fax: 27 21-959

E-mail:

KARATASI YA MAELEZO

Mada ya utafiti: Hatua za matibabu na changamoto zinazowakabili wagonjwa wa kiharusi waliowahi kulazwa katika hospitali ya Kilutheri ya Haydom.

Je utafiti huo unahusu nini?

Huu ni utafiti unaofanywa na Simon Azaria, mwanafunzi wa uzamini katika chuo kikuu cha Western Cape tunakuomba ushiriki katika utafiti huu kwa sababu wewe ni mgonjwa uliyewahi kuugua ugonjwa wa kiharusi.

Na maelezo yako ni ya muhimu sana katika utafiti huu. Lengo la utafiti huu ni kuchunguza changamoto zinazowapata wagonjwa wa kiharusi waliowahi kulazwa katika hospitali ya Kilutheri Haydom.

Nitautilizwa maswali gani iwapo nitashiriki katika utafiti huu?

Utaombwa kujaza dodozo kwa utafiti ambao utakuwa na sehemu nne A, B, C, D), zoezi hili litachukua muda usiozidi dakika 20-25 tu katika kujibu maswali yalipo katika sehemu zote nne. Kwa maswali ya hojaji, mahojiano yatafanyika hospitalini au nyumbani kwako.

Je ushiriki wangu katika utafiti huu utatunzwa kwa siri?

Tufanya kila liwezekanalo kutunza taarifa zako kwa usiri. Ili kusaidia kudhumisha usiri wa taarifa zako, dodozo letu halitakutaka kuandika jina lako wala hatutahitaji taarifa zozote zinazokutambulisha wewe binafsi kama tutaandika ripoti au makala yoyote kutokana na utafiti huu taarifa zinazokutambulisha zitalindwa kwa usiri kwa kiwango cha juu.

Kulingana na matakwa ya kisheria na/au viwango vya weledi, tutatoa taarifa kwa watu husika na/ au mamlaka husika kuhusu taarifa zozote zitakazokufikia kuhusiana na unyanyasaji wa watoto au dhara au madhara yoyote ambayo wewe au wengine watayapata kutokana na utafiti huu.

DIRECTOR
INSTITUTE OF KISWAHILI STUDIES

This is to certify that this is
a true translation of the English
version - Information sheet

Dr. Pendo S. Makanga

Madhara yakushiriki katika utafiti huu ni nini?

Hakuna madhara yoyote yanayoweza kutokea kuhusiana na kushiriki kwenye utafiti huu

Je nini faida ya utafiti huu?

Faida kwa upande wako ni kukutia moyo na kuwa na mbinu mabadala ya kutibu ugonjwa wa kiharusi. Matokeo ya utafiti huu yatamsaidia mtafiti kujifunza zaidi kuhusu taarifa muhimu za hatua za matibabu kwa wagonjwa wa kiharusi

Je ninaweza kushiriki katika utafiti huu na nikaamua kuacha muda wowote?

Ushiriki wako katika utafiti huu ni wa hiari kwa asilimia zote, unaweza kuamua kutoshiriki kabisa. Kama utaamua kushiriki katika utafiti huu unaweza pia kuamua kuacha wakati wowote, kama utaamua utoshiriki katika au kama utaacha kushiriki hautapata adhabu yoyote au kupoteza maslahi yoyote yanayokuhusu.

Inakuwaje kama nina maswahili?

Utafiti huu unafanywa na Simon Azaria mwanafunzi wa umahiri wa mifupa katika chuo kikuu cha Western Cape

Kama una swahili lolote kuhusu utafiti wenyewe tafadhali wasiliana na:-

Bw Simon Azaria,

Haydom Lutheran Hospital,

P.o. Box Mbulu,

Manyara,

Tanzania.

Simu ya mkononi: 0786134435

Barua pepe simonazaria@yahoo.com

Ikiwa unamaswali yoyote kuhusiana na utafiti huu na haki zako za kwenye kushiriki katika utafiti huu au kama unataka unataka kuripoti tatizo lolote ulilokumbanalo kuhusiana na utafiti, tafadhali wasiliana na mkuu wa idara

Prof. J. Philips

Mkuu wa kitivo cha Sayansi za Afya na jamii Prof. R. Mpofu

Chuo kikuu cha Western Cape.

Private Bag X17

Bellville 7535

Utafiti huu umeidhinishwa na kamati za Seneti, kamati ya Utafiti na Kamati ya Maadili za Chuo cha Western Cape.



Appendix J: Parental/Guardian consent form in Kiswahili



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21-959, Fax: 27 21-959
E-mail:

FOMU YA UKUBALI

Madaya Utafiti : Hatua za matibabu na changamoto zinazowakabili wagonjwa wa kiharusi waliowahi kulazwa katika hospitali ya Kilutheri ya Haydom.

Utafiti huu umeelezwa kwangu kwa lugha ninayowielewa na kwa hiari yangu mwenyewe ninakubali kushiriki. Maswali yangu kuhusu utafiti huu yamejibiwa vizuri. Ninatambua kwamba taarifa zozote zinazonihusu mimi zitatunzwa kwa usiri na kwamba ninaweza kuacha uendelea kushiriki bila kulazimika kutoa sababu yoyote na haitaniathiri mimi kwa namna yoyote ile.

Jina la mshiriki-----

Sahihi ya mshiriki -----

Tarehe -----

Ikiwa una maswali yoyote kuhusiana na utafiti huu na haki zako za ushiriki katika utafiti huu au kama unataka kuripoti tatizo lolote ulilokumbana nalo kuhusiana na utafiti, tafadhali wasiliana na mratibu wa utafiti

DR. Anthea Rhoda

Chuo kikuu cha Western Cape

Private Bag X17, Bellville 7535

Simu ya mezani (021)959-2542

Simu ya mkononi

Faksi : (021) 959-1217

Barua pepe arhoda.uwc.ac.za

DIRECTOR
INSTITUTE OF KISWAHILI STUDIES

This is to certify that this
is a true translation of the
English version - consent form
Dr. Pendo S. Malangua

Appendix K: Permission to conduct the study from the Senate Research Grants and Study Leave Committee at the University of the Western Cape

**OFFICE OF THE DEAN
DEPARTMENT OF RESEARCH
DEVELOPMENT**

Private Bag X17, Bellville 7535
South Africa
Telegraph: UNIBELL
Telephone: +27 21 959-2948/2949
Fax: +27 21 959-3170
Website: www.uwc.ac.za


27 October 2010


To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape has approved the methodology and the ethics of the following research project by:
Mr. S Azaria (Physiotherapy)

Research Project: The profile and challenges experienced by stroke patients admitted to the Haydom Mission Hospital, Tanzania

Registration no: 10/9/25


Peter Syster
Manager: Research Development Office
University of the Western Cape


**UNIVERSITY of the
WESTERN CAPE**

A place of quality, a place to grow, from hope to action through knowledge

Appendix L: Participants consent form in Kiswahili



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959, Fax: 27 21-959

E-mail:

FOMU YA UKUBALI

Madaya Utafiti : Hatua za matibabu na changamoto zinazowakabili wagonjwa wa kiharusi waliowahi kulazwa katika hospitali ya Kilutheri ya Haydom.

Utafiti huu umeelezwa kwangu kwa lugha ninayoyielewa na kwa hiari yangu mwenyewe ninakubali kushiriki. Maswali yangu kuhusu utafiti huu yamejibiwa vizuri. Ninatambua kwamba taarifa zozote zinazonihusu mimi zitatunzwa kwa usiri na kwamba ninaweza kuacha uendelea kushiriki bila kulazimika kutoa sababu yoyote na haitaniathiri mimi kwa namna yoyote ile.

Jina la mshiriki-----

Sahihi ya mshiriki -----

Tarehe -----

Ikiwa una maswali yoyote kuhusiana na utafiti huu na haki zako za ushiriki katika utafiti huu au kama unataka kuripoti tatizo lolote ulilokumbana nalo kuhusiana na utafiti, tafadhali wasiliana na mratibu wa utafiti

DR. Anthea Rhoda

Chuo kikuu cha Western Cape

Private Bag X17, Bellville 7535

Simu ya mezani (021)959-2542

Simu ya mkononi

Faksi : (021) 959-1217

Barua pepe arhoda.uwc.ac.za

DIRECTOR
INSTITUTE OF KISWAHILI STUDIES

This is to certify that this
is a true translation of the
English version - consent form
Dr. Pendo S. Malangu

Appendix M: Permission to conduct the study from the National Ethics Committee of Tanzania

THE UNITED REPUBLIC OF
TANZANIA



National Institute for Medical Research
P.O. Box 9653
Dar es Salaam
Tel: 255 22 2121400/390
Fax: 255 22 2121380/2121360
E-mail: headquarters@nimr.or.tz
NIMR/HQ/R.8a/Vol. IX/1054

Ministry of Health and Social Welfare
P.O. Box 9083
Dar es Salaam
Tel: 255 22 2120262-7
Fax: 255 22 2110986

10th December 2010

Mr Simon Azaria
ELCT Mbulu Diocese
Haydom Lutheran Hospital
P O Mbulu,
MANYARA

CLEARANCE CERTIFICATE FOR CONDUCTING MEDICAL RESEARCH IN TANZANIA

This is to certify that the research entitled: The Profile and Challenges Experienced by Stroke Patients Admitted to the Haydom Mission Hospital Manyara Tanzania, (Azaria S *et al*) has been granted ethics clearance to be conducted in Tanzania.

The Principal investigator of the study must ensure that the following conditions are fulfilled:

1. Progress report is submitted to the Ministry of Health and the National Institute for Medical Research, Regional and District Medical Officers after every six months.
2. Permission to publish the results is obtained from National Institute for Medical Research.
3. Copies of final publications are made available to the Ministry of Health & Social Welfare and the National Institute for Medical Research.
4. Any researcher, who contravenes or fails to comply with these conditions, shall be guilty of an offence and shall be liable on conviction to a fine. NIMR Act No. 23 of 1979, PART III Section 10(2).
5. Approval is for one year: 10th December 2010 to 09th December 2011.

Name: Dr Mwelecele N Malecela

Signature

ACTING CHAIRPERSON
MEDICAL RESEARCH
COORDINATING COMMITTEE

CC: RMO
DMO

Name: Dr Deo M Mtasiwa

Signature

CHIEF MEDICAL OFFICER
MINISTRY OF HEALTH, SOCIAL
WELFARE