

ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF NURSING AND MIDWIFERY

**PREVALENCE, NURSING MANAGERMENTS AND
PATIENTS' OUTCOMES AMONG STROKE PATIENTS
ADMITTED TO TIKUR ANBESSA SPECIALIZED
HOSPITAL, ADDIS ABABA, ETHIOPIA, 2018**

BY: - AYEHU KASSAW (BSC.N)

**A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY,
COLLEGE OF HEALTH SCIENCES, SCHOOL OF NURSING
AND MIDWIFERY IN PARTIAL FULFILLMENT OF
REQUIREMENTS OF MASTER'S DEGREE IN ADULT
HEALTH NURSING.**

JUNE 2018

ADDIS ABABA, ETHIOPIA

ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF NURSING AND MIDWIFERY

PREVALENCE, NURSING MANAGERMENTS AND STROKE PATIENTS'
OUTCOMES AMONG PATIENTS ADMITTED TO TIKUR ANBESSA
SPECIALIZED HOSPITAL, ADDIS ABABA, ETHIOPIA, 2018

By: AYEHU KASSAW (BSc N)

E-mail:- ayehu1213@gmail.com

Advisors: - AMSALE CHERIE (PHD.)

TADESSE BEDADA (M.Sc.)

A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY, COLLEGE OF
HEALTH SCIENCES, SCHOOL OF NURSING AND MIDWIFERY IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR DEGREE OF
MASTERS IN ADULT HEALTH NURSING.

June 2018

Addis Ababa, Ethiopia

ACKNOWLEDGMENT

Firstly, I would like to thank the almighty GOD who gave me a good health, strength, Courage, and commitment to do this research.

Secondly, my deepest gratitude and special thanks will goes to my principal advisor and instructor Dr. Amsale Cherie (PHD) for her unreserved assistance in giving me timely comments and relevant guidance and my second advisor, Mr. Taddesse Bedada (MSC.N) for his extended support and guidance to do this research.

Thirdly, I would like to express my heartfelt gratitude and thanks to Addis Ababa University School of Nursing and Midwifery for provision of the chance to do this research work.

ABBREVIATIONS AND ACRONYMS

ADL: Activity of Daily Living

CPM: Care Process Model

DALYS: Disability Adjusted Life Years

ETB: Ethiopian Birr

GBD: Global Burden of Disease

ICF: International Classification of Functioning, Disability, and Health

ICP: - Individual Care Plan

NANDA: - North American Nursing Diagnosis Association

NIC: - Nursing Intervention Classification

NOC: - Nursing Outcome Classification

TASH: -Tikur Anbessa Specialized Hospital

TIA: Transient Ischemic Attack

WHO: World Health Organization

ACKNOWLEDGMENT.....	I
ABBREVIATIONS AND ACRONYMS	II
LIST OF TABLES.....	V
LIST OF FIGURES	VI
ABSTRACT.....	VII
CHAPTER -ONE.....	1
1 INTRODUCTION	1
1.1 Background	1
1.2 Statement of the Problem	3
1.3 Significance of the Study	5
CHAPTER TWO	6
2 LITERATURE REVIEW	6
2.1 Definition of Stroke and types of stroke	6
2.2 The prevalence of stroke	7
2.3 Nursing managements of stroke.....	7
2.4 Outcomes of stroke.....	8
2.5 The Conceptual Framework.....	11
2.6 Research Questions	13
CHAPTER THREE	14
3 OBJECTIVES.....	14
3.1 General Objective.....	14
3.2 Specific Objectives.....	14
CHAPTER FOUR.....	15
4 METHODS AND MATERIALS	15
4.1 Study Area.....	15
4.2 Study Design	15
4.3 Study Period	15
4.4 Source and Study Population	15
4.4.1 Source Population	15
4.4.2 Study Population.....	15
4.4.3 Sample population	16
4.5 Eligibility Criteria	16
4.5.1 Inclusion Criteria	16

4.5.2	Exclusion Criteria	16
4.6	Sample Size Determination	16
4.7	Sampling Method	16
4.8	Data Collection Tool and Procedure	16
4.9	Study Variables	17
4.9.1	Dependent Variable	17
4.9.2	Independent Variables	17
4.10	Operational Definitions and Terms	18
4.11	Data Quality Control	19
4.12	Data Analysis Procedure	19
4.13	Ethical Considerations.....	20
4.14	Dissemination and Utilization of Results.....	20
CHAPTER FIVE- RESULTS.....		21
5	Results	21
5.1	Prevalence of stroke	21
5.2	Clinical presentations of stroke patients.....	23
5.3	Co-morbidities.....	24
5.4	Duration of hospital stay	25
5.5	Nursing managements of stroke	26
5.6	Outcomes.....	27
5.7	Complications.....	28
5.8	Causes of death.....	30
CHAPTER SIX.....		36
6	DISCUSSION.....	36
7	Conclusions and Recommendations	39
7.1	Conclusions	39
7.2	Recommendations	39
8	Strengths and Limitations of the study	40
	References	41
	Annex II: Data Abstraction Tool (English version).....	45
	Declaration.....	49

LIST OF TABLES

Table 1:- socio-demographic variables of stroke patients admitted to TASH, during July2015 to Feb2018, Addis Ababa, Ethiopia. (N=170)	21
Table 2:-socio-demographic distribution of stroke patients admitted to TASH, during July2015 to Feb2018, Addis Ababa, Ethiopia	22
Table 3:- Clinical presentations of patients along with types of stroke, admitted to TASH during July2015 to Feb2018, Addis Ababa, Ethiopia.....	23
Table 4:- Distributions and associations of stroke types by comorbidities among patients admitted to TASH during July2015 to Feb2018, Addis Ababa, Ethiopia.	25
Table 5: - duration of stroke patient’s hospital stay, who were admitted to TASH during July2015 to Feb2018, Addis Ababa, Ethiopia.	25
Table 6:-list of nursing managements provided to stroke patients admitted to TASH during July2015 to Feb2017, Addis Ababa, Ethiopia.	26
Table 7: - Distribution of patients’ outcomes by stroke types	28
Table 8:- Frequencies of complications that stroke patients developed, admitted to TASH during July2015 to Feb2018, Addis Ababa, Ethiopia.....	29
Table 9: - Results of bivariate logistic regression of ischemic stroke by age groups, sex, co-morbidities and life styles. (N=170)	32
Table 10: - Results of binary and multivariate logistic regression of patients’ outcomes by age, sex, comorbidities and lifestyles.	33
Table 11: - patients’ outcomes by nursing managements provided to patients admitted to TASH during July2015 to Feb2018, Addis Ababa, Ethiopia	35

LIST OF FIGURES

Figure 1: Conceptual Framework, showing of factors affecting prevalence, stroke patients' outcomes and the nursing managements of stroke, adopted from the determinants of patients' mortality model (30).	12
Figure 2: - Distribution of stroke patients by their outcomes.	27
Figure 3:- Distribution of patients' outcomes by duration of hospital stay	28
Figure 4:- Showing the most frequent causes of death of stroke patients	30

ABSTRACT

Introduction: Stroke is becoming the leading cause of morbidity and mortality throughout the Globe. However, there is paucity of data on the prevalence, nursing managements and outcomes of stroke patients in Ethiopia.

Objective: The aim of this study is to determine the prevalence, nursing managements provided and stroke patient's outcomes.

Methodology: Retrospective cross sectional study design was conducted among all new stroke patients admitted to TASH from July1/2015 to Feb30/2018, Addis Ababa, Ethiopia.

Results: In this study stroke prevalence was **19.3%**. Ischemic stroke was commonest of stroke which is 87 (51.2%) with an ischemic to hemorrhagic stroke ratio of **1.36:1**. Ten-years increase in patients' age leads to a 25% higher risk for ischemic stroke. Patients' with age groups of ≥ 65 years had (OR=7.463 95%CI (2.101, 26.508))7.463 folds' higher risk of getting ischemic stroke than younger patients. Hemiplegia/paresis was the most frequent clinical presentation occurred in **77.1%** of all stroke patients. Hypertension was the commonest comorbidity occurred in **50.1%** of all stroke patients. The odds of hypertensive patients getting ischemic stroke is lower than getting hemorrhagic stroke (OR=0.246, $P < 0.001$, CI 95% (0.112, 0.542)). Younger adults had 8.587 higher chances to improve free off complications than older adults did (OR=8.587 95%CI (2.417 ,30.501). Patients who early mobilized had an 8.991times higher chance of improved without complications (OR=8.991 95%CI (2.992,27.019). Aspiration pneumonia was the leading cause of death accounting for **39%** of all causes

Conclusion and Recommendations: Stroke in Ethiopia is on rise. The occurrence rises with age with peak between 35 to 65 years. Younger adult patients (18-34 years) were 18.2% of patients, which is more dangerous in view of the early occurrences of stroke, which leads for a higher and prolonged disability adjusted life years. A prospective hospital and community based stroke incidence, prevalence and nursing managements studies are required to define the true socio-demographic characteristics of stroke and the associated factors in our population.

Key words: stroke, stroke prevalence, nursing management, patients' outcome, chart review

CHAPTER -ONE

1 INTRODUCTION

1.1 Background

Stroke is a devastating and disabling cerebrovascular disease with significant amount of residual deficit leading to multiple losses. Stroke has been defined by WHO, as a rapidly developing signs of focal (or global) disturbance of cerebral function with symptoms lasting for >24 hours, or leading to death with no apparent cause other than vascular origin. In the western world, it is the third most common cause of morbidity and mortality (1).

It is highly prevalent in the developed countries (600-1000 per 100,000), as compared to the third world countries in the past. A recent community surveys undertaken in Africa countries showed stroke prevalence between 200 and 300 per 100,000 (2, 3). These figures are significantly higher than previous reports of stroke prevalence in African countries, which is 58-68 per 100,000 with age-standardized prevalence of 981 per 100,000 populations (4).

The situation in Ethiopia is also not different. So far, there is only one prevalence study by Reda et.al. Which showed a low prevalence of stroke (15% per 100,000 populations) in a rural community based study during 1986-1989 (5). As patients usually present late and the standard of care is poor compared to hospitals in developed countries. It is imperative to address the issues concerning the burden of stroke, risk factors and its mortality in Ethiopia (6).

A growing body of evidence indicates that patients do better with a well-organized, Interdisciplinary stroke care will not only reduce mortality rates and the likelihood of institutional care and long-term disability but also may enhance recovery and increase activities of daily living (ADL) independency (7).

The nursing care during the acute phase of stroke is to maintain vital functions, early mobilization and optimal nutrition. Furthermore, it is crucial to prevent secondary complications like pneumonia, aspiration, urinary retention, urinary tract infection, deep vein thrombosis, pulmonary embolus, pressure ulcers, agitation, seizure, stroke progression, falls and fractures, which might lead to deterioration (8).

Dysfunctions like anxiety, depression, sleep and sexual disorder; sensory, motor, cognitive and communication are prevalent alterations in stroke patients (9). This situation makes them dependent on nursing interventions. According to the Nursing Intervention Classification, an intervention is a treatment, based on clinical judgment and knowledge, the nurse performs to improve patient outcomes (8, 9).

Since the impact that stroke has on the individual is unique and widely depend on the injury and involvement of essential functions such as cognition, communication and physical functioning, the person's experiences of the disease and the care given should be individualized. Even if recovery from stroke is successful, many persons have some symptoms remaining for the rest of their life after stroke. Others have serious functional deficits and may need long time for rehabilitation, and during that time, they may need nursing and medical care. Thus, nursing care should depend upon accurate and unique assessment of the individuals' needs (10). According to the complexity and the care needs of many patients with stroke, it is especially important with a discharge decision to be based on knowledge from different professionals' assessment of patients, where the individual's multidimensional need and wishes are considered as well as how they may be met (9, 10).

1.2 Statement of the Problem

Stroke is the second leading cause of death in the world, comprising approximately 10% of all deaths and killing 5.5 million people each year, with 44 million disability-adjusted life-years (DALYs) lost. In 2013, there were 16.9 million strokes worldwide, of which 70% occurred in low- and middle-income countries; this trend is expected to increase over the next 20 years (1- 3).

According to the Care Process Model report, in the U.S. about 795,000 strokes occur each year. A fatal stroke occurs approximately every four minutes. Of the estimated 795,000 strokes in the U.S. each year, 185,000 are recurrent strokes (1, 2). The number of people with transit ischemic attacks (TIA), and at risk for stroke, estimated to be much greater. Stroke is a leading cause of disability, six months after a stroke, 26% of patients still need institutional care and 15% to 30% are permanently disabled (1, 11).

Stroke has been projected by the year 2050, to increase from 16% to 30.2% among the Hispanic population whereas the African American community to remain stable (12).

According to the recent WHO data, Stroke Deaths in Ethiopia reached 28,320 or 4.71% of total deaths. The age adjusted Death Rate is 71.94 per 100,000 of population ranks Ethiopia #107 in the world (WHO, 2017).

Nursing management of stroke is another area of concern in Ethiopia as well as in the globe. The burden that stroke poses to patients is multifaceted; this requires an integrated nursing care (12,13).

Urinary and fecal incontinence are common problems after stroke. 40% to 60% of stroke patients have urinary incontinence during their acute admission for stroke, falling to 25% by hospital discharge. At one year, 15% will remain incontinent of urine (16).

Age, cognition and motor impairments are risk factors for bladder incontinence. Fecal incontinence prevalence is around 40% acutely but diminishes to 20% by discharge from rehabilitation. Functional impairments are also other risk factors for fecal incontinence on admission for stroke (15, 16).

Impaired awareness of urinary incontinence leads to skin complications and the need for nursing care 3 months after stroke will increase. Nonetheless, many patients recover

continence after stroke. Because of the risk of skin breakdown, the social stigma, and the burden of care associated with incontinence, management of bowel and bladder continence is an essential part of the rehabilitation process (16-19). Although considerable data on the rate of urinary incontinence exist, there is a paucity of published studies on therapeutic interventions to improve rates of continence. The recommendation to remove indwelling urinary catheters within 24 hours is based on the Centers for Disease Control and Prevention recommendations for all hospitalized patients to prevent catheter-associated urinary tract infections and is not specific to stroke (17, 18).

Stroke frequently results in communication impairment. One million people in the United States estimated to have aphasia. It can negatively affect participation in life activities immediately after the stroke and can result in long-term deficits. It is equally important for the nurses as well as the health care team to identify strengths and compensatory strategies that can enable the patient to maximize independence and to reenter life activities with as much competency and confidence as possible (19).

Dysphagia (impairment in swallowing) occurs in 30% to 64% of patients in the acute phase of stroke recovery and in 37% to 78% of the general stroke population. With respect to Speech-language physiotherapist, it is the most commonly treated impairment in patients with neurological disorders. Patients with dysphagia are more likely to experience aspiration pneumonia, which leads to higher mortality rates. Dysphagia has also been associated with poorer ability to complete ADLs, greater caregiver burden, and more frequent nursing home placement (20).

Many people recover completely after a stroke. For others, it can take many months to recover from a stroke. Physical therapy and other retraining methods are greatly improving rehabilitation and recovery. Despite clot-busting medications that help during an ischemic stroke, overall, about 30% of people die from stroke (7).

In general, the more deficits or loss of ability (in walking or talking) individuals had when they arrive in the emergency department, the worse the outcome will be (7, 21).

1.3 Significance of the Study

Stroke is one of the commonest causes of morbidity and mortality among non-communicable diseases. Its occurrence has been significantly increasing in Sub Saharan Africa in the last couple of decades.

However, little is known about the prevalence, the nursing managements provided and stroke patients' outcomes. Therefore, the findings of this study will reveal very important information related to stroke.

Nurses commonly have the most direct contact with stroke patients and patients' caregivers; they often called on to implement management techniques for care given. Therefore, what nurses do to stroke patients needs to be addressed and the effect they had to the outcomes of patients must be supported with researches. This research will be the icebreaker to address the nursing managements of stroke patients and the possible outcomes of stroke patients.

The findings obtained from this study will be useful in many ways for Governmental and non-governmental organizations to take intervention measures and set appropriate plans to decrease the existing level of stroke prevalence in TASH, Addis Ababa. This study will also help as a base line for supervisors, trainers, policy makers and for further studies. In addition to that, this finding will also be useful to nursing research and practice to develop comprehensive stroke care.

This study originated from a future desire of the principal investigator to prospectively analysis the effects of an intervention in a health care setting concerning the stroke care.

CHAPTER TWO

2 LITERATURE REVIEW

2.1 Definition of Stroke and types of stroke

Stroke: is a medical condition in which poor blood flow to the brain results in cell death (2). There are two main types of stroke: ischemic, due to lack of blood flow, and hemorrhagic, due to bleeding. They result in part of the brain not functioning properly. Signs and symptoms of a stroke may include: - an inability to move or feel on one side of the body, problems of understanding or speaking, feeling like the world is spinning, or loss of vision to one side. Signs and symptoms often appear soon after the stroke has occurred. If symptoms last less than one or two hours, it is known as a transient ischemic attack (TIA) or mini-stroke. A hemorrhagic stroke may also be associated with a severe headache. The symptoms of a stroke can be permanent. Long-term complications may include pneumonia or loss of bladder control (1, 17).

The main risk factor for stroke is high blood pressure. Other risk factors include tobacco smoking, obesity, high blood cholesterol, diabetes mellitus, previous TIA, and atrial fibrillation. An ischemic stroke typically caused by blockage of a blood vessel, though there are also less common causes. A hemorrhagic stroke is caused by either bleeding directly into the brain or into the space between the brain's membranes. Bleeding may occur due to a ruptured brain aneurysm (1, 2).

Diagnosis is typically with medical imaging such as a CT scan or magnetic resonance imaging (MRI) scan along with a physical exam. Other tests like, electrocardiogram (ECG) and blood test done to determine risk factors and to rule out other possible causes. Low blood sugar may cause similar symptoms (2, 17).

Stroke ranked the second most common cause of death and the third most common cause of disability-adjusted life years lost worldwide (1). Overall, 71% of these stroke deaths and 78% of disability-adjusted life years lost occur in low- and middle-income countries. The South Asian region makes up >40% of the developing world and is thought to be the highest contributor to the global stroke mortality (1, 2).

2.2 The prevalence of stroke

In the absence of published population-based prevalence data, a limited number of researches conducted to determine the prevalence of stroke.

In A population-based, cross-sectional study conducted among 2313 adults aged ≥ 18 years residing in Colombo, Sri Lanka, the prevalence of stroke was 10.4 per 1000 with a 2:1 male: female ratio. Beyond the age of 65 years, the prevalence was higher by 6-fold among men and by 2-fold among women, 92% had developed hemiparesis, 58.3% had dysphasia, and 16.7% had loss of balance. Hypertension was the commonest risk factor (62.5%) followed by smoking (45.8%), excess alcohol (41.7%), diabetes mellitus (33.3%), and transient ischemic attack (29.2%); 79.2%, predominantly men, had ≥ 2 risk factors. A percentage of 58.3 had brain computed tomographic scans, of which 85.7% had ischemic strokes. A percentage of 64.3 had to change or give up working because of stroke-related disability (2, 3, 31).

In Nigeria, the prevalence of hemorrhagic and ischemic stroke in two hospitals was 29.5% and 54.7% respectively. From a hospital-based data in Senegal, 70% of strokes were of ischemic in nature and hypertension identified as the major risk factor in 68% followed by diabetes mellitus in 37.3% of the cases (13, 14).

In a study in Ethiopia a decade ago, showed that hemorrhagic stroke was the most common cause of stroke accounting for 59.2% of patients who had brain CT scan (5).

2.3 Nursing managements of stroke

The review of 12 papers, 11 were published after the years 2000, six in North American and five in European countries, by Fortaleza et.al. (2009) shows list of nursing interventions frequently given for stroke patients. These are:-motor and functional rehabilitation, medication administration, monitoring of physiological functions, Planning for patient discharge, Emotional care, Care to prevent complications and traumas, Assessment for use of thrombolytic therapy, Emergency screening, Skin care, Assessment of clinical and neurological elements, care related to self-care activities, Urinary catheter, Nasal oxygen administration, oral care, correct positioning of the patient in the bed, aspiration prevention care, back massage, write down patient weight and register start time of the symptoms. Drug administration was the nursing intervention nurses most frequently reminded with regard to stroke patents and it was

mentioned as an important source of support in active disease treatment because it enhances wellbeing (9, 21).

The American Heart Association Council on Cardiovascular Nursing and Stroke Council (AHACC/SC) recommends for thrombolytic treatment:- neurological assessment and vital signs, except for temperature, every 15 minutes during r-TPA infusion, every 30 minutes during the next six hours and every 60 minutes during the subsequent 16 hours; temperature measurement every four hours; forwarding to the medical service in case of alterations in vital signs; offering oxygen through nasal cannula, two to three liters per minute if oxygen saturation levels decrease below 92%; monitoring for haemorrhagic complications; cardiac monitoring for 72 hours and bed rest and these all cares provided should be documented (26).

Stroke is a complex disease process that requires the skills of an interdisciplinary team, nurses frequently play a central role in care coordination throughout the recovery continuum. A prospective observational study of 54 USA rehabilitation facilities with a geographically stratified random sample found that a 1% increase in the number of certified rehabilitation nurses on units was associated with an approximately 6% decrease in patient length of stay (7, 21).

Before any intervention is performed, the nurses and other interdisciplinary team members should determine the stroke survivor's premorbid bladder and bowel patterns (15, 26). Although urinary retention is common during the initial stages of stroke recovery, by 1 year after stroke, it occurs in only 15% of patients. In these patients, bladder emptying should be checked and monitored, because retention is a significant contributing factor to urinary tract infections. Post stroke urinary incontinence needs to be addressed given that when persistent and associated with other disabilities and hospitalizations, it is a strong predictor of survival and recovery at 3 months. Management choices are based on the type of post stroke incontinence (15, 16, 18).

2.4 Outcomes of stroke

According to a study by Wolfe et.al (2011), a prospective population-based study with the aim of generating population-based estimates of long-term outcomes after stroke using data for up to 10 years of follow-up in an unbiased population sample, the South London Stroke Register. Results showed that, the highest proportion of disabled stroke survivors was observed in 7 days after stroke, while the proportion remained at around 110 per 1,000 stroke survivors after 3 months. Rates of inactivity declined in the first

year after stroke, then remained stable until year eight, then increased, whereas rates of cognitive impairment fluctuated until year eight, then increased. Anxiety and depression showed variation up to 10 years, with average rates around 350 and 310 per 1,000 populations, respectively. Levels of inactivity were higher in males at all-time points. No other major differences were observed between males and females. Higher levels of inactivity were observed in white compared with black stroke survivors. Age was directly associated with rates of disability, inactivity, and cognitive impairment, while there was no clear association between age and anxiety and depression (23).

In a prospective study by Crichton SL et.al, Population-based South London Stroke Register, with participants followed up annually until death. Outcomes were survival, disability, activity impairment, cognitive impairment, quality of life impairment, depression and anxiety. Of 2625 people having first-ever stroke, 262 (21%) survived to 15 years. By 15 years, 61% of the survivors were male, with a median age of stroke onset of 58 years, among the 15-year survivors 33.8% had mild disability, 14.3% moderate disability and 15.0% severe disability. The prevalence of disability increased with time but 1 in 10 of the 15-year survivors had lived with moderate-severe disability since their stroke. At 15 years, the prevalence of cognitive impairment was 30.0%, depression 39.1% and anxiety 34.9% and survivors reported greater loss of physical than mental quality of life (24).

In a retrospective study describing the clinical characteristics and outcomes of patients with stroke admitted at three tertiary hospitals in Zimbabwe during the year 2012, 39.4% of patients had a CT scan done and the mean length of hospital stay was 8.1 ± 5.7 days. Results showed that, Hemorrhagic stroke was reported in 54.0% of patients, 58.4% patients were known hypertensive and there were 25% in-hospital deaths (25).

In another retrospective study of the registered patients in the emergency department of the University of Calabar, Nigeria, Neurological emergencies accounted for 25.7% of the total medical emergencies of which the most common diagnoses (52.5%) were stroke (14).

Few studies from Africa have identified stroke as the most common neurologic disease requiring hospital admission. In a study in North-Western Nigeria, stroke was found to be the major (77.6%) neurologic admission and the most common cause of neurologic and medical deaths (25).

In a one-year non-randomized controlled study in Makerere University, College of Health Sciences, Kampala, Uganda, comparisons between two groups. Of 127 stroke patients who had 'usual care' (control group) were compared to 127 stroke patients who received selected elements of care (intervention group). There were 77 (60.6%) survivors in the intervention group and out of these, 35 (45.5%) had satisfactory outcomes (22 totally independent and 13 dependent). There were 91 (71.7%) survivors in the control group and out of these, 49 (53.8%) had satisfactory outcome (30 totally independent and 19 independent). Regarding secondary outcomes, in-hospital mortality was 41 (32.2%) in intervention group and 23 (18.1%) in the control group. The median survival time was 30 days in the control group and 30 days in the intervention group (22, 29).

In another retrospective assessment of risk factors and treatment outcome of stroke admissions at St. Paul's teaching hospital, by Gedefa B.et.al., the most common type of stroke was haemorrhagic stroke, with ischemic to hemorrhagic stroke ratio of 0.55. The in-hospital case fatality rate in this study was 30.1%, and previous history of stroke and transient ischemic attack were associated with increased in-hospital death (p-values of 0.04 and <0.001, respectively) (26).

Retrospective chart record analysis of adult patients with stroke who had Computerized tomography(CT) scan of the brain admitted to University of Gondar hospital medical wards from June 2010 to May 2013, by Ermias et.al. CT scan confirmed reports found in 104 patients. Females and males comprised 53.1% and 46.9% of the study population respectively with a ratio of 1.13:1. The most common stroke subtype was ischemic stroke, accounting for 68(69.4%) cases while hemorrhagic stroke accounted for the remaining 30(30.6%) cases, Hypertension was found as the most common risk factor identified in 55(53.2%) of the cases and the in hospital case fatality of stroke was 13.3%. According to the study the in-hospital case fatality of stroke was 13.3%. Among the 98 patients with documented outcomes, 58(59.18%) were discharged with improvement whereas 13(13.3%) died in the hospital. Eight (8.2%) patients discharged with the same condition and one referred. Eighteen (18.3%) patients discharged against medical advice on self and family request. The median duration of hospital stay was 13(IQR: 7 -19) days and ranged from 1 day to 60 days. The median duration of hospital stay before death was 6 days (27).

2.5 Conceptual Framework

The Determinants of Morbidity and Mortality Model guided this study. Underlying this model is the assumption that each health care system has a unique mix of structures and processes that affect patient outcome and that an important subset of these characteristics reflects nursing care delivery structures and processes. Because the need for nursing care is usually the most important reason for hospitalization, how nursing care is structured and delivered affects patient survival or death.

However, the nursing care given to stroke patient, is affected by the patients' socio-demographic characteristics, the type of stroke, the presence of comorbidities, the clinical presentation of patients on arrival and the life style of the patients' are factors that determine the nursing managements provided to stroke patients (30).

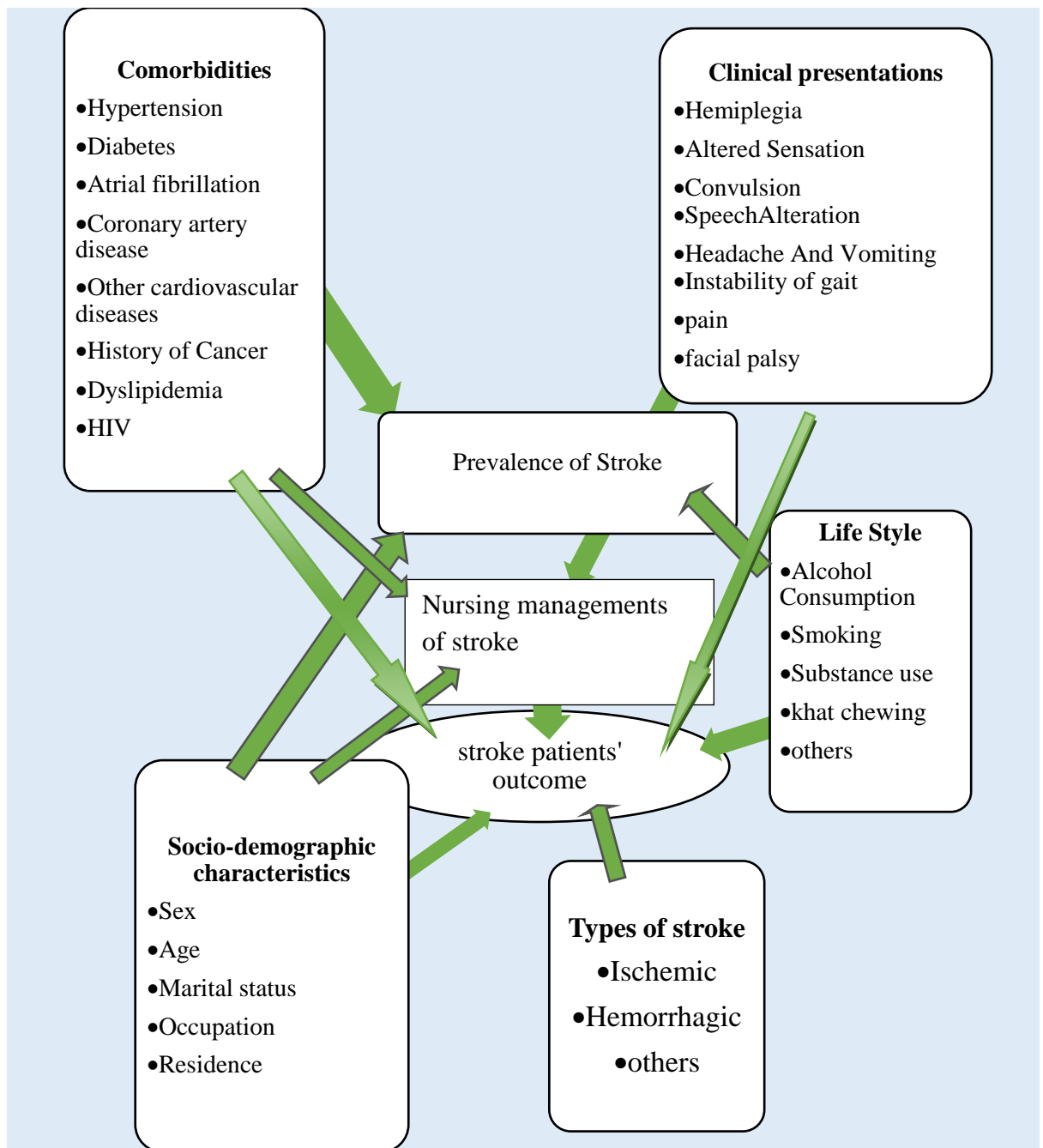


Figure 1: Conceptual Framework, showing of factors affecting prevalence, stroke patients' outcomes and the nursing managements of stroke, adopted from the determinants of patients' mortality model (30).

2.6 Research Questions

1. What is the prevalence of stroke among patients admitted to TASH from July1/ 2015 to Feb30/ 2018?
2. What types of nursing managements provided for stroke patients admitted to TASH from July1/ 2015 to Feb30/ 2018?
3. What was the outcome of the individual stroke patients admitted to TASH from July1/ 2015 to Feb30/ 2018?

CHAPTER THREE

3 OBJECTIVES

3.1 General Objective

To assess the prevalence of stroke, the nursing managements provided and outcomes of stroke patients admitted to Tikur Anbessa Specialized Hospital (TASH) from July1/2015 to Feb30/2018, Addis Ababa, Ethiopia, 2018.

3.2 Specific Objectives

- To assess the prevalence of stroke among patients admitted to TASH.
- To identify the nursing management of stroke among patients admitted to TASH.
- To describe the outcome of stroke patients admitted to TASH.

CHAPTER FOUR

4 METHODS AND MATERIALS

4.1 Study Area

This study was conducted in Tikur Anbessa Specialized Hospital (TASH), Addis Ababa University, Addis Ababa, Ethiopia. Addis Ababa University is a state university located in Addis Ababa, the capital city of Ethiopia, established in 1950 and named as University College of Addis Ababa. Later in 1962 renamed as Haile Selassie I University, after the Ethiopian Emperor Haile Selassie I. Then in 1975 the institution received its current naming, Addis Ababa University.

Addis Ababa university collage of health sciences is the training center for fellows, postgraduates, undergraduate, medical students, dentists, nurses, Radiographers and laboratory technicians. Tikur Anbessa specialized hospital is the largest teaching hospital in Ethiopia. It is the largest referral center, serves for tertiary cares from all sides of the country, with approximately 370,000- 400,000 patients flow per year. The hospital has over 800 beds, with over 169 specialists, 65 non-teaching doctors, 986 nurses and 8 major operating theatre rooms.

4.2 Study Design

Hospital based retrospective cross sectional study design was conducted to assess the prevalence of stoke, the nursing managements and stroke patients' outcomes.

4.3 Study Period

This study was conducted from March1/2018to March30/2018, in TASH, Addis Ababa, Ethiopia.

4.4 Source and Study Population

4.4.1 Source Population

The source population for this particular study was all medical records registered in TASH for medical reasons.

4.4.2 Study Population

The study population for this study was all medical recordings of new neurologic admissions from July1/2015 to Feb30/2018

4.4.3 Sample population

The sample population was all medical records of new neurologic inpatients from July 2015 to Feb 2018 and which fulfill the inclusion criteria.

4.5 Eligibility Criteria

4.5.1 Inclusion Criteria

- Medical records (charts) of stroke patients \geq 18 years old
- Charts of stroke patients with CT scan/MRI confirmations
- Charts with complete information
- Charts of patients with More than 72hrs admission

4.5.2 Exclusion Criteria

- Charts of stroke patients with age less than 18 years
- Charts of stroke patients with stroke secondary to injury or trauma

4.6 Sample Size Determination

For the prevalence study, all medical records of patients newly admitted to neurologic departments from July 1/2015 to Feb/30/2018 was taken as a denominator.

In addition, medical records of stroke patients, registered from July 1/2015 to Feb/30/2018 that fulfill the inclusion criteria, retrieved from medical records of TASH for the nursing managements provided and for individual stroke patient's outcome.

4.7 Sampling Method

Number of admitted patients from the neurology unit of this hospital during the study period was identified from the patients chart and then charts of stroke patients was identified and reviewed.

4.8 Data Collection Tool and Procedure

Data was collected using a standard data abstraction tool, adopted from a retrospective study conducted on three tertiary hospitals in Zimbabwe, for the review of stroke profile (24). The data abstraction tool contains two parts: -

The first part addressed review of all charts for the prevalence of stroke. The second part which was filled after CT Scan/MRI confirmed results, addressed data concerning:

- Socio-demographic characteristics, place of referral, clinical presentations of patients, comorbidities, types of stroke, length of hospital stay, life style, patients' outcomes and nursing managements provided, complications developed and causes of death. Five days of training was given for data collectors about proper handling of data, how to extract data from charts and solve challenges of unfilled charts.

Four BSc nurses, two supervisors and the principal investigator conducted the data collection. Pretest was done in St. Paulo's hospital on 25 stroke patients' charts and results were complete for data related to socio-demographic data, comorbidities, lifestyles, clinical presentations, nursing managements provided, patients outcomes and causes of death.

4.9 Study Variables

4.9.1 Dependent Variable

Stroke prevalence, nursing managements and stroke patient's outcomes are the dependent variables for this particular retrospective study.

4.9.2 Independent Variables

➡ **For objective one (stroke prevalence)**

- Socio demographic characteristics: - sex, age, marital status, occupation and residence
- Clinical presentations: - hemiplegia/paresis, altered cognitions, speech alterations, convulsion, instability of gait, headache, vomiting, pain and facial palsy, incontinence, dysphagia and others like altered sensations and vision problems.
- Co-morbidities: - hypertension, diabetes mellitus(types), other cardiovascular diseases, atrial fibrillation, history of cancer, coronary artery diseases, dyslipidemia, HIV and others like asthma and CKD
- Life style: -alcohol consumption, smoking, substance abuse and Khat chewing and others like shisha and drug abuse

➡ **For objective two (nursing managements)**

- Clinical presentations
- Co-morbidities
- Life style

➡ **For objective three (patients' outcomes)**

- Types of stroke
- Life style
- Socio demographic characteristics
- Co-morbidities

4.10 Operational Definitions and Terms

Stroke: defined as “rapidly developing clinical signs of focal (or global) disturbance of cerebral function lasting longer than 24 hours, unless interrupted by death, with no apparent cause other than that of vascular origin”, confirmed with CT scan/MRI.

Years of Life Lost (YLL): years of life lost because of premature mortality secondary to stroke.

Disability Adjusted Lived Years (DALYs): - Years which the stroke patients lived with the disabilities and impairments caused by stroke.

Nursing management/intervention: -is a treatment or care based on clinical judgment and knowledge, the nurse performs to improve patient outcomes. Such as: -

- Motor and functional rehabilitation,
- Medication administration,
- Monitoring of physiological functions, and
- Planning for patient discharge,
- Emotional care, care to prevent complications and traumas,
- Assessment for use of thrombolytic therapy,
- Emergency screening,
- Skin care, and
- Assessment of clinical and
- Neurological elements,
- Care related to self-care activities,
- Urinary catheter,
- Nasal oxygen administration,
- Oral care,
- Correct positioning of the patient in the bed, and

- Aspiration prevention care,
- Back massage,
- Write down patient weight and register start time of the symptoms and
- Others

Stroke patients' outcome: - it can be

Improvement without complications: -is when an individual stroke patient discharged with better health and relieved from clinical complaints as well as none of the complications developed.

Improve with single complication: - a stroke patient with improved sign and symptoms but discharged with one of stroke complications especially, physical impairment, cognitive impairment, ADL impairment and communication impairment.

Worsen: - is when the treatment of signs and symptoms failed and more than one (multiple) complications developed.

Death: - when loss of life occurs because of stroke and its complications.

Against medical advice: - is when stroke patients refuse all the medical advices despite of their health status and treatment outcomes.

Other outcomes: for patients referred abroad for advanced care and others like rehabilitation centers.

4.11 Data Quality Control

Data collectors were assigned from Zewditu Hospital, Addis Ababa for the reduction of bias. Close supervision by two trained BSc nurses, was done during data collection procedure and proper recording was taken. Immediate checkup was carried out and any unfilled data was filled immediately. Data was placed properly in secured and safe place.

4.12 Data Analysis Procedure

All categorical variables, frequencies and percentages was calculated. In addition, data entry and analysis was conducted using Epi data 4.1 and exported in to SPSS version 23. Then, the entered data was edited, cleaned and analyzed. Finally, the data was summarized using descriptive statistics of median (IQR), mean (\pm SD) and percentage

and presented in tables, charts and figures. Cross tabulation was used to assess the proportion of dependent variables. In specific variables, bivariate and multivariate logistic regression analysis was used to identify associated factors of socio-demographic, co-morbidities, life styles and stroke patients' outcome using odds ratio and level of significance at 5%.

4.13 Ethical Considerations

Institution Review Board (IRB) of Addis Ababa University, College of Health Science, School of Allied Health Sciences, Department of Nursing and Midwifery reviewed the protocol to insure full protection of the rights of patients while reviewing individual charts. Following the approval by IRB, Official letter of co-operation wrote to TASH from Department of Nursing and Midwifery of AAU. After getting permission from TASH, data collectors handled medical records coded. Data was treated confidentially and identify medical records by numbers only. Patients' health records are the property of the institution in which the documentation filed. No human subjects were involved in this study. Data anonymity was maintained using a coded number corresponding to the patient specific MRN (chart identification number) creating a coding sheet.

4.14 Dissemination and Utilization of Results

Results disseminated to TASH and AAU, College of Health Science, School of Nursing and Midwifery, through documentation. To researchers and students, the results disseminated through presentations. If possible, it will be accessible on internet for all through publication.

CHAPTER FIVE- RESULTS

5 Results

5.1 Prevalence of stroke

From 879 neurologic new inpatient admissions, 256 recorded for stroke of all types. Among the total of stroke admissions 170 were eligible for the inclusion criteria, making stroke prevalence 19.3%. Among the stroke patients 97 (57.1%) were male and the rest 73 (42.9%) were female with a male to female ratio of 1.3:1. The mean age was 52.49 (± 17.53) years with a median age of 51 (IQR, 40-65.25) years. (Table1)

Table 1:- socio-demographic variables of stroke patients admitted to TASH, during July2015 to Feb2018, Addis Ababa, Ethiopia. (N=170)

Socio-demographic data		N	%
Age groups	18-34 years	31	18.2
	35-64 years	96	56.5
	(Mean age :52.49 \pm 17.53)	>=65 years	43
Residence (regions)	Addis Ababa	64	37.6
	Amhara	26	15.3
	Oromia	42	24.7
	Tigray	15	8.8
	SNNP	18	10.6
	Others	5	2.9
	Student	7	4.1
Occupation	Merchant	18	10.6
	Gov. employee	31	18.2
	No job	8	4.7
	Others	68	40
	Not recorded	38	22.4
Marital status	Single	16	9.4
	Married	111	65.3
	Divorce	4	2.4
	Widowed	4	2.4
	Not recorded	35	20.6
Referral site(N=131)	From hospitals in A.A	86	65.7
	From regional hospitals	40	30.5
	Others	5	3.8

The most common stroke subtype was ischemic stroke accounting for 87 (51.2%) while hemorrhagic stroke accounting for 64 (37.6%) of cases and other types of stroke like cardio-embolic stroke accounts 19 (11.2%). The mean age of ischemic stroke patients was 56.09 years (± 17.99) and that of hemorrhagic was 51.47 (± 14.87) years and for cardio-embolic stroke was 39.42 years (± 17.82). The median age of patients with ischemic stroke was 55 years (IQR: 40-72) compared to 50 years (IQR: 45-61) for hemorrhagic stroke and 32 years (IQR: 25-60) for cardio-embolic stroke. Regarding occupations of patients, occupations like house-wife, self-employed and retired was reported with others (which accounts for 40.0% of all occupations). (Table 2)

Table 2:-socio-demographic distribution of stroke patients admitted to TASH, during July2015 to Feb2018, Addis Ababa, Ethiopia

Socio-demographic data		Types of stroke(N=170)			Total
		Ischemic N (%)	Hemorrhagic N (%)	Others N (%)	
Sex	Male	53(54.6%)	34(35.1%)	10(10.3%)	97(100%)
	Female	34(46.6%)	30(41.1%)	9(12.3%)	73(100%)
Age (years)	18-34	12(38.7%)	9(29%)	10(32.3)	31(100%)
	35-64	44(46%)	45(47%)	7(7%)	96(100%)
	>65	31(72%)	10(23%)	2(5%)	43(100%)
Residence	A.A	35(55%)	24(37%)	5(8%)	64(100%)
	Amhara	10(38.5%)	15(57.7%)	1(3.8%)	26(100%)
	Oromia	21(50%)	15(35.7%)	6(14.3)	42(100%)
	Tigray	8(53.3%)	6(40%)	1(6.7%)	15(100%)
	SNNP	11(61.1%)	3(16.7%)	4(22.2%)	18(100%)
	Others	2(40%)	1(20%)	2(40%)	5(100%)
Occupation	Student	1	3	3	7
	Merchant	7	8	3	18
	Government employee	16	12	3	31
	No job	4	3	1	8
	Others	38	24	6	68
	Not recorded	21	14	3	38

5.2 Clinical presentations of stroke patients

Hemiplegia/paresis was the most frequent clinical presentation complained by 77.1% of stroke patients of which the majority was by ischemic and hemorrhagic stroke patients having similar chance for hemiplegia/paresis (76%). Prevalence of headache and vomiting in hemorrhagic stroke patients was 56.3% and 42.2% respectively, which is higher as compared to the other stroke subtypes. The rest most frequently reported by stroke patients were speech alterations (52%), altered cognition (39%), headache (34.7%), vomiting (32.9%) and instability of gait (21.8%) of the total stroke patients. Altered cognitions occurred in 42.2% of patients with hemorrhagic stroke, which is higher as compared to patients with ischemic stroke (39.2%). (Table 3)

Table 3:- Clinical presentations of patients along with types of stroke, admitted to TASH during July2015 to Feb2018, Addis Ababa, Ethiopia.

		Stroke types(N=170)			
Clinical presentations		Ischemic stroke	Hemorrhagic stroke	Other types	Total
Hemiplegia/paresis	No	21 (24.1%)	15 (23.4%)	3 (15.8%)	39 (22.9%)
	Yes	66 (75.9%)	49 (76.6%)	16 (84.2%)	131 (77.1%)
Speech alterations	No	41 (47.1%)	29 (45.3%)	12 (63.2%)	82 (48.2%)
	Yes	46 (52.9%)	35 (54.7%)	7 (36.8%)	88 (51.8%)
Instability of gait	No	68 (78.2%)	51 (79.7%)	14 (8.2%)	133 (78.2%)
	Yes	19 (21.8%)	13 (20.3%)	5 (26.3%)	37 (21.8%)
Convulsion	No	68 (78.2%)	54 (84.4%)	14 (73.7%)	136 (80.0%)
	Yes	19 (21.8%)	10 (15.6%)	5 (26.3%)	34 (20.0%)
Altered cognition	No	53 (60.9%)	37 (57.8%)	14 (73.7%)	104 (61.2%)
	Yes	34 (39.1%)	27 (42.2%)	5 (26.3%)	66 (38.8%)
Headache	No	62 (71.3%)	36 (56.3%)	13 (68.4%)	111 (65.3%)
	Yes	25 (28.7%)	28 (43.8%)	6 (31.6%)	59 (34.7%)
Vomiting	No	64 (73.6%)	37 (57.8%)	13 (68.4%)	114 (67.1%)

	Yes	23 (26.4%)	27 (42.2%)	6 (31.6%)	56 (32.9%)
Dysphagia	No	69 (79.3%)	55 (85.9%)	18 (94.7%)	142 (83.5%)
	Yes	18 (20.7%)	9 (14.1%)	1 (5.3%)	28 (16.5%)
Urinary incontinence	No	57 (65.5%)	41 (64.1%)	17 (89.5%)	115 (67.6%)
	Yes	30 (34.5%)	23 (35.9%)	2 (10.5%)	55 (32.4%)
Fecal incontinence	No	67 (77.0%)	49 (76.6%)	18 (94.7%)	134 (78.8%)
	Yes	20 (23.0%)	15 (23.4%)	1 (5.3%)	36 (21.2%)
Facial palsy	No	75 (86.2%)	53 (82.8%)	15 (78.9%)	143 (84.1%)
	Yes	12 (13.8%)	11 (17.2%)	4 (21.1%)	27 (15.9%)
Pain	No	80 (92.0%)	53 (82.8%)	14 (73.7%)	147 (86.5%)
	Yes	7(8.0%)	11 (17.2%)	5 (26.3%)	23 (13.5%)
Vision difficulty	No	85 (97.7%)	60 (93.8%)	19 (11.2%)	164 (96.5%)
	Yes	2 (2.3%)	4 (6.3%)	---	6 (3.5%)
Others	No	81 (93.1%)	57 (89.1%)	18 (94.7%)	156 (91.8%)
	Yes	6 (6.9%)	7 (10.9%)	1 (5.3%)	14 (8.2%)

5.3 Co-morbidities

Hypertension was the most comorbid disease with stroke patients, it happens in 50.6% of all stroke patients and it frequently happens on patients with hemorrhagic (67.2%) than ischemic stroke (41.4%). Following hypertension, other cardiovascular disease like (ischemic heart diseases) (16.5%), DM type II (14.7%) and others like DVT and epilepsy were the common co-morbidities. Hemorrhagic stroke had a significant association with hypertension ($r=0.258$, $p<0.001$), while ischemic stroke had a negative significant association with hypertension ($r= -0.189$, $p<0.014$). (Table 4)

Table 4:- Distributions and associations of stroke types by comorbidities among patients admitted to TASH during July2015 to Feb2018, Addis Ababa, Ethiopia.

Co-morbidities		Stroke types			Total
		Ischemic stroke	hemorrhagic stroke	other types of stroke	
hypertension	no	51	21	12	84(49.4%)
	yes	36(p<0.014)	43(P<0.001)	7	86(50.6%)
Diabetes type II	no	68	58	19	145(85.3)
	yes	19	6	0	25(14.7%)
Other cardio-vascular diseases	no	74	56	12	142(83.5%)
	yes	13	8	7	28(16.5%)
HIV	no	85	57	19	161(94.7%)
	yes	2	7	0	9(5.3%)
Atrial fibrillation	no	78	53	16	147(86.5%)
	yes	9	11	3	23(13.5%)
Other comorbidities	no	68	58	17	143(84.1%)
	yes	19	6	2	27(15.9%)

5.4 Duration of hospital stay

Duration of hospital stays of stroke patients started with a minimum of 3 days to a maximum of 54 days and with a mean duration of hospital stay of 14 (± 8.20) days. Majority, 67 (39.4%) of stroke patients had a two week hospital stay followed by a one week hospital stay. The mean hospital stay before discharged with improve without complications was 13.64 (± 7.1) days, before death was 15.41 (± 10.034) days before worsen 11 (± 6.15) days and before discharged with improvement with single complication was 16.31 (± 8.95) days. (Table 5)

Table 5: - duration of stroke patient's hospital stay, who were admitted to TASH during July2015 to Feb2018, Addis Ababa, Ethiopia.

	Frequency	%
3 to 10 days	63	37.1
11 to 18 days	67	39.4
19 to 26 days	24	14.1
≥ 27 days	16	9.4
Total	170	100%

5.5 Nursing managements of stroke

Bedside physiotherapy, positioning, vital sign monitoring and routine cognitive assessments were the most frequently provided nursing managements. (Table 6)

Table 6:-list of nursing managements provided to stroke patients admitted to TASH during July2015 to Feb2017, Addis Ababa, Ethiopia.

Nursing managements provided	Frequencies	Nursing managements provided	Frequencies
Bed side physiotherapy	157	Ambulation training	82
Positioning	154	Input/output measurement	70
Vital sign monitoring	154	Fluid administration	66
Routine cognitive assessment	122	Skin care	60
Medication administration	107	Oral care	53
Early mobilization	106	Bed making	52
Reassurance	105	Establish regular exercise program	47
Ng tube feeding	94	Rehabilitations	39
Prevention of falling	34	Prevention of shoulder abduction	14
Bathing	33	Prevention of choking	10
Use of mobility assistive devices	30	Wt. Measurement	9
Health education	30	Enema	7
Back massage	21	Bad odor control	4
Modification of food and fluid	16	Others	9

5.6 Outcomes

Among patients 37.65% discharged with improvement without any complications and 28.24% of patients discharged with improvement with single complication. Among all stroke patients 34 (20%) reported dead. (Fig. 2)

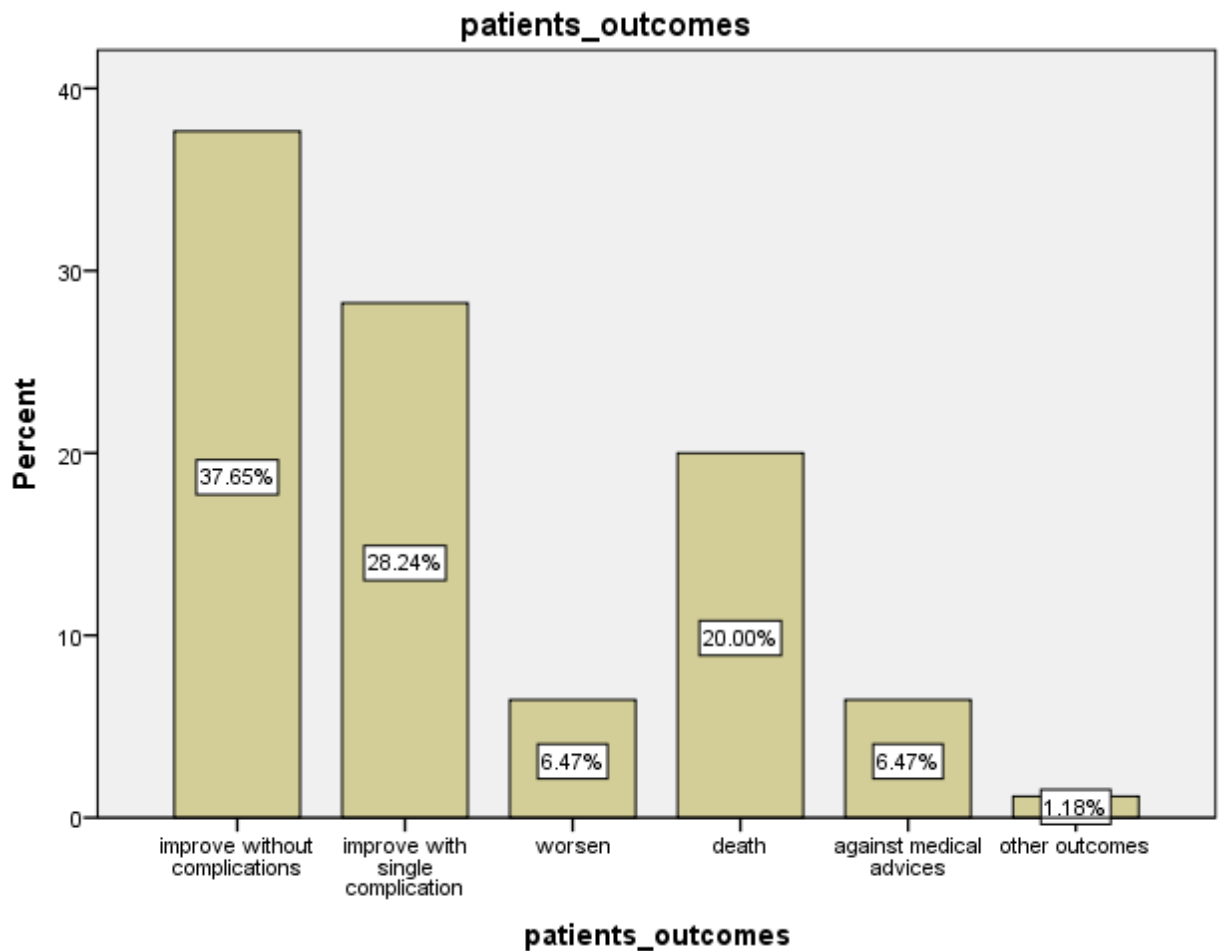


Figure 2: - Distribution of stroke patients by their outcomes.

As shown in Fig.3, 42% of patients with an outcome of improved without complications had a one-week hospital stay, 47.9% of patients with outcome of improved with single complication had a two-week hospital stay and thirteen (38.2%) of patients with death outcomes had 2 weeks of hospital stay.

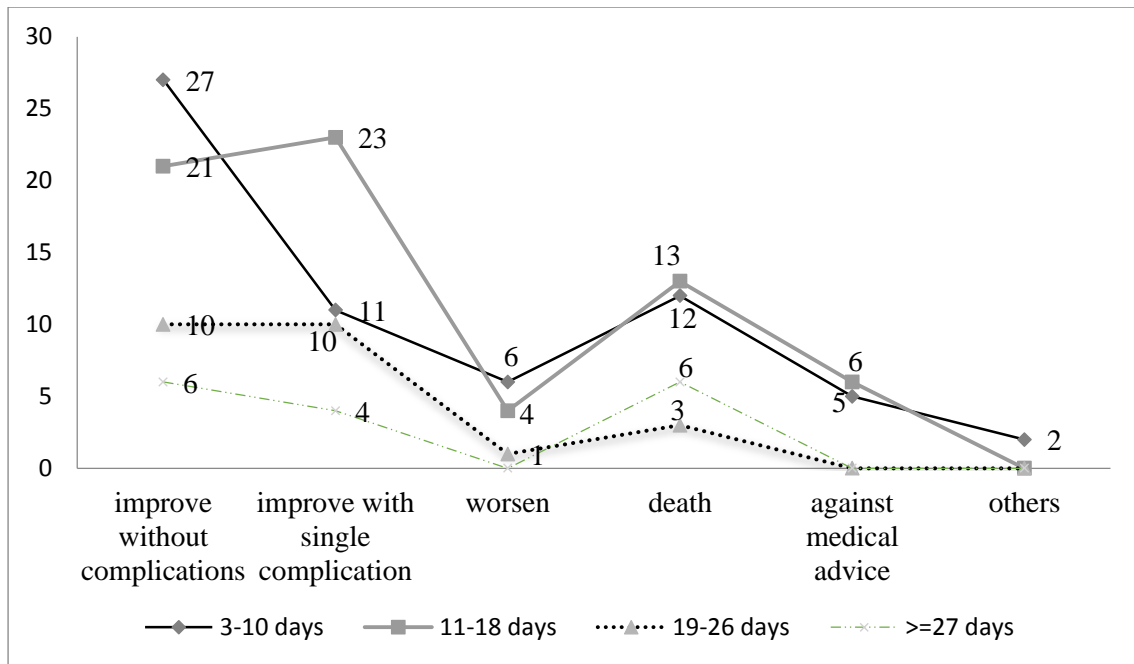


Figure 3:- Distribution of patients' outcomes by duration of hospital stay

As shown in table 7, death rate of ischemic stroke is 20.7% accounting for 52.9% of all deaths secondary to stroke and its complications, followed by hemorrhagic stroke with a death rate of 20.3%, accounting for 38.2% of all deaths.

Table 7: - Distribution of patients' outcomes by stroke types

Patients' outcomes	Stroke types			Total
	Ischemic	Hemorrhagic	Other types	
Improve without complications	34 (53.1%)	21(32.8%)	9(14.1)	64 (37.6%)
Improve with single complication	19 (39.6%)	23 (47.9%)	6 (12.5%)	48 (28.2%)
Worsen	7	4	-	11 (6.5%)
Death	18(52.9%)	13 (38.2%)	3(8.8%)	34 (20%)
Against medical advices	7	3	1	11(6.5%)
Other outcomes	2	-	-	2 (1.2%)
Total	87(51.2%)	64(37.6%)	19(11.2%)	170(100%)

5.7 Complications

Balance and gait problems occurred in 27.6% of stroke patients, followed by speech alterations (22.9%), depression (12.4%) and aspiration pneumonia (10.6%). (Table 8)

Table 8:- Frequencies of complications that stroke patients developed, admitted to TASH during July2015 to Feb2018, Addis Ababa, Ethiopia.

Complications		Stroke Types (N=170)			Total(of stroke patients)
		Ischemic	Hemorrhagic	Others	
Aspiration pneumonia	No	79 (90.8%)	56 (87.5%)	17(89.5%)	152 (89.4%)
	Yes	8 (9.2%)	8 (12.5%)	2 (10.5%)	18 (10.6%)
Speech alterations	No	67 (77.0%)	49 (76.6%)	15(78.9%)	131 (77.1%)
	Yes	20 (23.0%)	15 (23.4%)	4 (21.1%)	39 (22.9%)
Depression	No	78 (89.7%)	52 (81.3%)	19 (100%)	149 (87.6%)
	Yes	9 (10.3%)	12 (18.8%)	--	21 (12.4%)
Balance and gait problems	No	63 (72.4%)	45 (70.3%)	15(78.9%)	123 (72.4%)
	Yes	24 (27.6%)	19 (29.7%)	4 (21.1%)	47 (27.6%)
DVT	No	82 (94.3%)	63 (98.4%)	18(94.7%)	163 (95.9%)
	Yes	5 (5.7%)	1 (1.6%)	1 (5.3%)	7 (4.1%)
Heart failure	No	82 (94.3%)	63 (98.4%)	17(89.5%)	162 (95.3%)
	Yes	5 (5.7%)	1 (1.6%)	2 (10.5%)	8 (4.7%)
Pressure ulcer	No	85 (97.7%)	61 (95.3%)	18(94.7%)	164 (96.5%)
	Yes	2 (2.3%)	3 (4.7%)	1 (5.3%)	6 (3.5%)
UTI	No	83 (95.4%)	62 (96.9%)	18(94.7%)	163 (95.9%)
	Yes	4 (4.6%)	2 (3.1%)	1 (5.3%)	7 (4.1%)
Facial palsy	No	83 (95.4%)	59 (92.2%)	18(94.7%)	160 (94.1%)
	Yes	4 (4.6%)	5 (7.8%)	1 (5.3%)	10 (5.9%)
Visual loss	No	87 (100%)	63 (98.4%)	19 (100%)	169 (99.4%)
	Yes	--	1 (1.6%)	--	1 (0.6%)
Other hospital acquired infections	No	85 (97.7%)	63 (98.4%)	19 (100%)	167 (98.2%)
	Yes	2 (2.3%)	1 (1.6%)	--	3 (1.8%)

5.8 Causes of death

Aspiration pneumonia was the leading cause of death accounting for 39% followed by heart failure 19%, ICP (increased intra-cranial pressure) 17% and Acute Respiratory stress syndrome (ARDS) accounts for 11% of all deaths. (Fig 4)

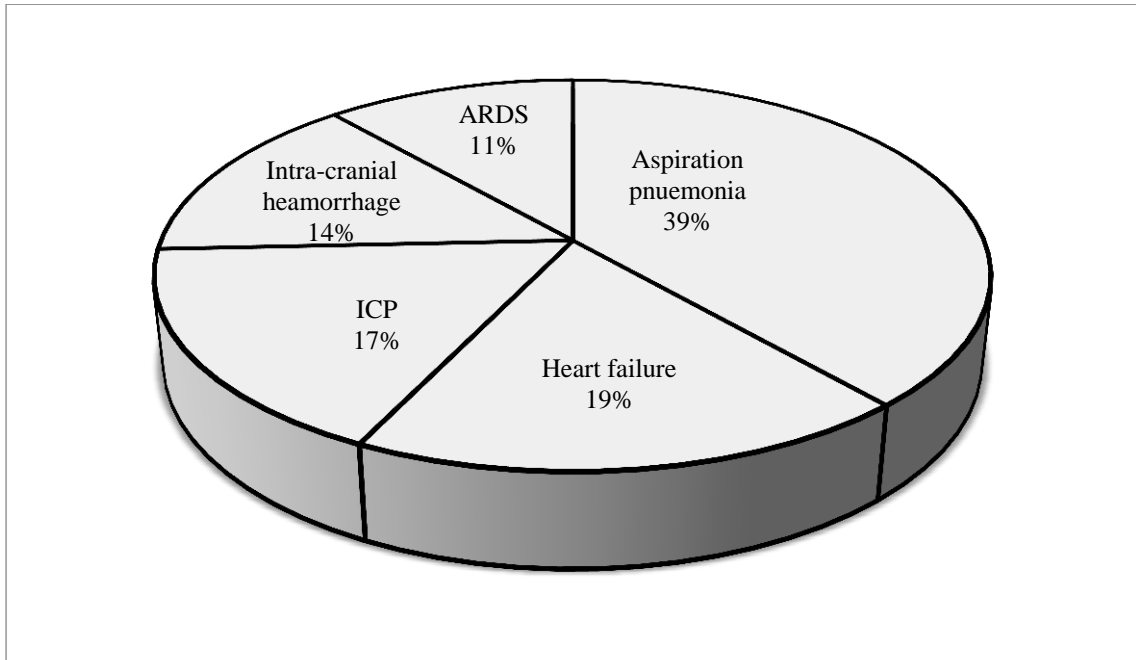


Figure 4:- Showing the most frequent causes of death of stroke patients

Bivariate and multivariate analysis

The bivariate logistic regression of ischemic stroke by sex shows that, there was no statistically significant difference among the stroke subtypes with sex, occupations and areas of residence, although stroke has a non-significant relationship with sex, male patients had a 1.29 times higher risk for ischemic stroke (OR, 1.290, P=0.414, 95% CI (1.056, 6.271)). Patients' age has a statistically significant association with ischemic and hemorrhagic stroke types (p=0.00 and p=0.011 respectively), ten-years increase in patients' age leads to a 28% higher risk for ischemic stroke. Patients' with age groups of ≥ 65 years had 7.463 folds' higher risk of getting ischemic stroke than patients with age groups of 35-64 years and 18-34 years. Patients with in the age group 35-64 years had a 2.287 times higher chance of getting ischemic stroke than the younger adults.

Regarding co-morbidities, Non hypertensive patients were exposed to ischemic stroke than hemorrhagic stroke (OR=4.053 95%CI (1.855, 8.852). The odds of hypertensive patients getting ischemic stroke is lower than getting hemorrhagic stroke (OR=0.246, P<0.001, CI 95% (0.112, 0.542)). However, patients with DM II had a higher risk of getting ischemic stroke than hemorrhagic and cardio-embolic stroke. Alcohol consumers had a higher risk for hemorrhagic and cardio-embolic stroke than ischemic stroke. (Table 9)

Table 9: - Results of bivariate logistic regression of ischemic stroke by age groups, sex, co-morbidities and life styles. (N=170)

Variables		Cruds OD (95%CI)				Adjusted OD(95%CI)	
		Ischemic stroke		P-value	COR (95%CI)	p-value	AOD (95%CI)
		Yes	No				
Age	18-34 years	12	19	0.128	0.539 (0.243, 1.195)		
	35-64 years	44	52	0.113	0.610 (0.331, 1.125)	0.108	2.287 (1.834, 6.271)
	>=65 years	31	12	0.002	3.275 (1.543, 6.953)	0.002	7.463 (2.101, 26.508)
Sex	Male	53	44	0.298	1.382 (0.751,2.541)		1.293 (1.056, 2.548)
	Female	34	39	0.301	0.724 (0.394, 1.331)		
Co-morbidities							
Hypertension	Yes	36	50	0.133	0.466 (0.252, 0.860)		
	No	51	33	0.015	2.146 (1.163,3.961)	0.000	4.053 (1.855, 8.852)
DM II	Yes	19	6	0.014	3.586 (1.354, 9.498)		
	No	68	77	0.010	0.279 (0.105,0.739)	0.025	0.286 (0.096, 0.852)
Other CVDs	Yes	13	15	0.706	0.796 (0.353,1.795)		
	No	74	68	0.583	1.256 (0.557,2.829)	0.065	1.326 (0.533,3.298)
Atrial fibrillation	Yes	9	14	0.301	0.569 (0.232,1.396)		
	No	78	69	0.218	1.758 (0.716,4.316)	0.048	2.789 (1.008, 7.721)
Life styles							
Alcohol consumption	Yes	33	39	0.480	0.689(0.374, 1.270)		
	No	54	44	0.233	1.450 (0.787,2.672)		1.029 (0.479, 2.210)
Smoking	Yes	8	12	0.374	0.599 (0.232, 1.550)		
	No	79	71	0.291	1.699 (0.645,4.317)	0.354	1.094 (0.286, 4.186)
Khat chewing	Yes	4	10	0.121	0.352 (0.106, 1.170)		
	No	83	73	0.088	2.842 (0.855,9.451)	0.448	1.814 (0.389,8.454)

Younger adults had 8.587 higher chances to improve free off complications than older adults did. Middle-aged adults had a 5.374 higher chance to improve free of complications (OR=5.374, P=0.21, 95% CI (1.875, 15.402). Non-hypertensive patients had a 1.449 times higher chance to improve without complications. Stroke patients with DM II had a 4.183 times lower chance to improve without complications. (Table 10)

Table 10: - Results of binary and multivariate logistic regression of patients' outcomes by age, sex, comorbidities and lifestyles.

Variables		Patients' outcomes		crude OR		Adjusted OR	
		Improve without complications (N=64)		P= value	COR (95%CI)	AOR (95% CI)	
		Yes	No				
Age	Younger adults	19	12	0.001	12.033 (3.699, 39.149)	8.587 (2.417 ,30.501)	
	Middle adults	40	56	0.021	5.429 (1.964, 15.007)	5.374 (1.875 ,15.402)	
	Older adults	5	38				
Co-morbidities	Hypertension	Yes	27	59	0.090	1.720 (0.0919, 3.200)	1.449 (1.681,3.084)
		No	37	47			
	Atrial fibrillation	Yes	3	20	0.015	4.729 (1.345, 16.622)	5.248 (1.396,19.734)
		No	61	86			
	DM II	Yes	3	22	0.009	5.325 (1.525, 18,597)	4.183 (1.115,15.691)
		No	61	84			
Other CVDs	Yes	8	20	0.281	1.628 (0.671, 3.950)	2.140 (1.019,5.661)	
	No	56	86				

Regarding the impact of nursing managements on patients' outcomes, bedside physiotherapy has a significant impact on patients' improvement without complications. Patients who get bedside physiotherapy had a 1.337 times higher chance of improved without complications (OR=1.337, P<0.047, 95%CI (1.490, 6.888)). Stroke patients with nursing care of frequent positioning had a 1.649 times higher chance of improved without complications. Patients who early mobilized had an 8.991times higher chance of improved without complications (OR=8.991 95%CI (2.992, 27.019)). (Table 11)

Table 11: - patients' outcomes by nursing managements provided to patients admitted to TASH during July2015 to Feb2018, Addis Ababa, Ethiopia

Variables (Nursing managements)		Patients' Outcomes		crude OR		Adjusted OR
		Improve without complications (N=64)		COR (95%CI)	p-value	AOR (95% CI)
		Yes	No			
Bed side physiotherapy	Yes	58	99	1.463 (0.469,4.564)	0.047	1.337 (1.490,6.888)
	No	6	7	0.586 (0.219,2.132)		
Positioning	Yes	58	96	1.007 (0.348,2.916)	0.038	1.649 (1.102,6.762)
	No	6	10	0.600 (0.343,2.876)		
Vital sign monitoring	Yes	59	95	1.366 (0.452,4.129)	0.954	0.961 (0.244,3.788)
	No	5	11	0.732 (0.242,2.212)		
Routine cognitive assessment	Yes	37	85	2.954 (1.484,5.881)	0.065	1.528 (1.010,3.829)
	No	27	21	0.339 (0.170,0.674)		
Medication administration	Yes	44	63	1.502 (0.780,2.892)	0.821	0.903 (0.372,2.190)
	No	20	43	0.666 (0.346,1.283)		
Early mobilization	Yes	56	50	7.840 (3.408,18.04)	0.001	8.991 (2.992,27.019)
	No	8	56	0.128 (0.055,0.293)		
Reassurance	Yes	47	58	2.288 (1.166,4.488)	0.557	0.739 (0.270,2.027)
	No	17	48	0.437 (0.223,0.857)		
Ng tube feeding	Yes	20	74	5.087 (2.599,9.960)	0.02	0.223 (0.092,0.545)
	No	44	32	0.197 (0.100,0.385)		
Ambulation training	Yes	42	40	3.150 (1.647,6.024)	0.858	1.095 (0.405,2.965)
	No	22	66	0.317 (0.166,0.607)		
Input/output measurement	Yes	25	45	0.869 (0.461,1.636)	0.433	0.692 (0.276,1.737)
	No	39	61	1.151 (0.611,2.167)		
Fluid administration	Yes	27	39	0.798 (0.423,1.504)	0.324	0.614 (0.233,1.617)
	No	37	67	1.254 (0.665,2.363)		
Skin care	Yes	21	39	0.839 (0.436,1.614)	0.557	0.739 (0.739,0.270)
	No	43	67	1.192		

CHAPTER SIX

6 DISCUSSION

This is the first study on stroke at TASH, addressing the prevalence, nursing managements and patients' outcomes.

Prevalence of stroke is 19.3%, which is similar with studies done in selected sub-Saharan countries like, Nigeria, Gambia and Upper Egypt these similarities might be due to socio-demographic (4,32). The most common stroke subtype was ischemic stroke accounting for 87 (51.2%) while hemorrhagic stroke accounting for 64 (37.6%) of cases with a ratio of 1.3:1 this result is similar for the prevalence of ischemic stroke with a study in Nigeria, which reports, the prevalence of hemorrhagic and ischemic stroke in two hospitals as 29.5% and 54.7% respectively. However, the prevalence of hemorrhagic stroke shows a higher prevalence in this study than that of Nigeria. The prevalence of ischemic stroke is lower than results in a hospital-based data in Senegal, in which 70% of strokes were of ischemic in nature; this difference may be due to life style differences between study subjects (5, 24).

The mean age of patients was 56 and 51 years for ischemic and hemorrhagic strokes respectively. Majority of stroke patients were in the age groups of 35-65 years (middle-adults) accounting 56.5% followed by older adults (≥ 65 years) and younger adults (18-34 years) accounting 18.2% and 25.3% respectively these results were similar with a study done in upper Egypt (1). Ischemic stroke has a significant association with age at 95% CI ($r=0.23$, $p<0.002$) and cardio-embolic stroke is significantly associated with younger adults ($r=0.32$, $p<0.001$) at 95% CI these results were consistent with studies done in Gondar university hospital (6, 32).

Among stroke patients 97 (57.1%) were male and the rest 73 (42.9%) were female with a male to female ratio of 1.3:1 which is consistent with results of the global stroke burden reports (2013) which has been increasing for both men and women but the increases have been greater among men (1, 13).

Hemiplegia/paresis was the most frequent clinical presentation occurred in 77.1% of all stroke patients, followed by speech and cognitive alterations. Ischemic and hemorrhagic stroke patients having similar chance for hemiplegia/paresis (76%). Prevalence of

headache and vomiting in hemorrhagic stroke patients was 56.3% and 42.2% respectively, which is higher as compared to the other stroke subtypes. The rest most frequently reported by stroke patients were speech alterations (52%), altered cognition (39%), headache (34.7%), vomiting (32.9%) and instability of gait (21.8%). These results were consistent with results of studies done in Upper Egypt, in which Hemiplegia/paresis is the commonest presentation of stroke (76.5%), followed by aphasia (59%). This similarity may be due to the type of the study and the pathologic effects of stroke (32).

Duration of hospital stay of stroke patients starts with 3 days and ends at 54 days with a mean duration of hospital stay of 14.34 days. These results were higher as compared with a study in Jordanian government hospitals, which is, 7.8 days. These differences could be explained by different ways like availability of other referral sites, lost to follow up and quality of health care.

Hypertension was the most frequent co-morbidity occurred in 50.6% of all stroke patients followed by other cardiovascular diseases (16.55%), DM II (14.7%) and Atrial Fibrillations (13.5%). These results were inconsistent with results of a study done at three tertiary hospitals (N=450) in Zimbabwe showing that hypertension (58.8%), DM II (81%) and CVDS (25%) this difference may be because of the demographic profile of the Zimbabwean study subjects life style and the sample size differences (24).

Results of this study was low compared with a study done in Senegal on comorbidities and risk factors like; hypertension identified as the major risk factor in 68% followed by diabetes mellitus in 37.3% cases (25).

In this current study the prevalence of hypertension among ischemic and hemorrhagic stroke patients is 36.34% and 67% respectively which is inconsistent with results from a study in Upper Egypt, in which, hypertension was significantly more encountered among hemorrhagic stroke (81.2%) than ischemic stroke patients (62.6%) (32).

Most of stroke patients (37.65%) discharged with improve without complications while 28.24% improve with single complication and death rate is 20%, which is higher than a study in Gondar University (death rate of 13.3%) (5). Death rate of ischemic stroke is 20.7, which accounts for 52.9% of all deaths which was lower than that reported by

studies conducted in sub-Saharan Africa which ranged from 18.8% in Nigeria to 27% in Gambia (33).

Type II DM is significantly associated with death of stroke patients ($r=0.21$, $p<0.007$) at 95% CI, which means stroke patients with DM II are highly predicted to die. While atrial fibrillation significantly associated with single complications ($r=0.17$, $p<0.025$) at 95% CI. Hypertensive patients had a 1.45 times lower to improve without complications. Non hypertensive patients were more exposed to ischemic stroke than hemorrhagic stroke (OR=4.053 95%CI (1.855, 8.852). The odds of hypertensive patients getting ischemic stroke is lower than getting hemorrhagic stroke (OR=0.246, $P<0.001$, CI 95% (0.112, 0.542)), these results were consistent with a systemic review reports in SSA regions (6, 34).

Balance and gait problem is the most frequent complication occurred in 47 (27.6%) of stroke patients followed by speech alterations and aspiration pneumonia, these results are consistent with results in studies done in developing countries (10, 21).

Aspiration pneumonia is the leading cause of death accounting for 39% of death, followed by heart failure and increased intra-cranial pressure and this result is consistent with studies done in SSA regions this may be because of the health care delivery system and the health care setting which share some common features (27, 29).

Bedside physiotherapy has a significant impact on patients' improvement without complications. Patients who get bedside physiotherapy had a 1.337 times higher chance of improved without complications (OR=1.337, $P<0.047$, 95%CI (0.490, 6.888). Stroke patients with nursing care of frequent positioning had a 1.649 times higher chance of improved without complications. Patients who early mobilized had an 8.991-fold higher chance of improved without complications. There was limited studies to compared with, a study by *T.B. Cumming.et.al*. Patients exposed to early mobilization intervention and physiotherapy had fewer depressive and muscle contracture symptoms than controls at seven days post-stroke (At 7 days, early mobilized patients were less depressed ($p = 0.012$) and marginally mobilize independently ($p = 0.073$) than standard care patient. Complications like pressure ulcer and UTI had minimal prevalence, 3.5% and 4.1% respectively, as compared to studies in SSA Countries (34).

7 Conclusions and Recommendations

7.1 Conclusions

Stroke in Ethiopia as well as in TASH is on rise. The occurrence rises with age with peak between 35 to 65 years. Younger adult patients (18-34 years) were 18.2% of patients, which is more dangerous in view of the early occurrences of stroke, which leads for a higher and prolonged disability adjusted life years. Males affected more than females in ischemic stroke (**M: F=1.56:1**) but for hemorrhage, incidence was equal. Hypertension was amongst leading risk factors for both types. Most common clinical presentation was hemiplegia/paresis followed by speech alterations. Nursing management has a great impact on the outcome of stroke patients. Bedside physiotherapy, frequent positioning and early mobilized are nursing managements which had an impact on the improvement of stroke patients without complications. Aspiration pneumonia is most prevalent cause of death with can be reduced by a multidisciplinary approach.

7.2 Recommendations

Policy makers should put strategies for screening and management of hypertension, structural heart disease, DM and atrial fibrillation, as these are the most prevalent co-morbidities (risk factors) identified. An emergency care setup, perhaps protocol based, capable of early brain imaging, identifying and managing early stroke complications is invaluable for the prevention of early stroke related mortality.

Nurse researchers should conduct prospective studies for the impact of nursing managements on the outcome of patients and complication reductions of stroke.

Death rate in this stay was higher than previous studies, for this; governmental bodies should consider and measures like preventive and health promotion activities, for the impact of non-communicable diseases like stroke on the wider community.

A prospective hospital and community based stroke incidence and prevalence studies are required to define the true socio-demographic characteristics of stroke and the associated factors in our population.

8 Strengths and Limitations of the study

Strengths

The demographic shift of diseases from communicable to non-communicable is the major public health issue in the world as well as in SSA. This study is the Icebreaker to assess stroke prevalence, nursing managements and outcomes of patients. Providing an input data for further prospective nursing researches is other strength of the current study.

Limitations

This is a hospital-based study and as such, the results cannot represent the general population. As this study is based on retrospective chart review, the data obtained was might be affected by the documentation culture of the hospital and the health care providers. Significant numbers of patients discharged against medical advice, which made the in hospital mortality non-representative of the short-term mortality. The poor nursing documentations may affect the real impact of nursing management to patients' outcomes and stroke complication reduction.

References

1. Feigin VL, Krishnamurthi R, Bhattacharjee R, et al., *New Strategy to Reduce the Global Burden of Stroke*, *Stroke*, 46 (2015):1740-7.
2. Berkowitz AL, *Stroke and the Noncommunicable Diseases: A Global Burden in Need of Global Advocacy*, *Neurology*, 84 (2015):2183-4.
3. Chen, x., Zhou, l., zhang, y., yi, d., liu, l., rao, w., wu, y., ma, d., liu, x., zhou, x. h., lin, h., cheng, d. & yi, d. 2014. *Risk factors of stroke in Western and Asian countries: a systematic review and meta-analysis of prospective cohort studies*. *BMC Public Health*, 14, 776.
4. Sridharan SE, Unnikrishnan JP, Sukumaran S, Sylaja PN, Nayak SD, et al. (2009) *Incidence, types, risk factors and outcome of stroke in a developing country. He Trivandrum stroke registry*. *Stroke* 40: 1212-1218.
5. Asefa G, Meseret S (2010) *CT and clinical correlation of stroke diagnosis, pattern and clinical outcome among stroke patients visiting Tikur Anbessa Hospital*. *Ethiop Med J*. 48: 117-122.
6. Ermias Shenkutie Greffie, Tadesse Mitiku, Seid Getahun. *Risk Factors, Clinical Pattern and Outcome of Stroke in a Referral Hospital, Northwest Ethiopia*. *Clinical Medicine Research*. Vol.4, No. 6, 2015, pp. 182-188. doi: 10.11648/j.cmr.20150406.13
7. Nelson A, Powell-Cope G, Palacios P, Luther SL, Black T, Hillman T, Christiansen B, Nathenson P, Gross JC. *Nurse staffing and patient outcomes in inpatient rehabilitation settings*. *Rehabil Nurs*. 2007;32: 179–202.
8. Summers D, Leonard A, Wentworth D, Saver JL, Simpson J, Spilker JA, et al. *Comprehensive overview of nursing and interdisciplinary care of to the acute ischemic stroke patient*. *Stroke*. 2009; 40 (8):2911-44.
9. Cavalcante Tahissa Frota, Moreira Rafaella Pessoa, Guedes Nirla Gomes, Araujo Thelma Leite de, Lopes Marcos Venícios de Oliveira, Damasceno Marta Maria Coelho et al . *Nursing interventions for stroke patients: an integrative literature review*. *Rev. esc. enferm. USP*. 2011 Dec; 45(6): 1495-1500.
10. Powers, W., et al., 2015 *AHA/ASA focused update of the 2013 guidelines for the early management of patients with acute ischemic stroke regarding endovascular treatment*. *Stroke*, June 29, 2015.

11. BANG, O. Y., OVBIAGELE, B. & KIM, J. S. 2015. Nontraditional Risk Factors for Ischemic Stroke. *Stroke*, 46, 3571-3578.
12. Lamassa M, Di Carlo A, Pracucci G, Basile AM, Trefoloni G, et al. (2001) Characteristics, outcome and care of stroke associated with atrial fibrillation in Europe. Data from a Multi-centre Multinational Hospital-Based Registry (the European Community Stroke Project). *Stroke* 32: 392-398.
13. Boan, a. D., feng, w. W., ovbiagele, b., bachman, d. L., ellis, c., adams, r. J., kautz, s. A. & lackland, d. T. 2014. Persistent racial disparity in stroke hospitalization and economic impact in young adults in the buckle of stroke belt. *Stroke*, 45, 1932-1938.
14. Owolabi LF, Shehu MY, Shehu MN, Fadare J (2010) Pattern of neurological admissions in the tropics: Experience at Kano, North-western Nigeria. *Ann Indian Acad Neurol* 13: 167-170.
15. Barrett JA. Bladder and bowel problems after stroke. *Rev Clin Gerontol*. 2002;12:253–267.
16. Brittain K, Perry S, Shaw C, Matthews R, Jagger C, Potter J. Isolated urinary, fecal, and double incontinence: prevalence and degree of soiling in stroke survivors. *J Am Geriatr Soc*. 2006;54:1915–1919
17. Centers for Disease Control and Prevention. Guidelines for prevention of catheter-associated urinary tract infections: CDC Guidelines.2009.http://www.cdc.gov/hicpac/cauti/001_cauti.html.
18. Thomas LH, Cross S, Barrett J, French B, Leathley M, Sutton CJ, Watkins C. Treatment of urinary incontinence after stroke in adults. *Cochrane Database Syst Rev*. 2008:CD004462. doi: 10.1002/14651858. CD004462.pub3
19. National Institute of Deafness and Other Communication Disorders. Aphasia. <http://www.nidcd.nih.gov/health/voice/aphasia.htm>.
20. Smithard DG, O'Neill PA, Parks C, Morris J. Complications and outcome after acute stroke: does dysphagia matter? [published correction appears in *Stroke*. 1998;29:1480–1481]. *Stroke*. 1996;27: 1200–1204.
21. Summers D, Leonard A, Wentworth D, Saver JL, Simpson J, Spilker JA, et al. Comprehensive overview of nursing and interdisciplinary care of to the acute ischemic stroke patient. *Stroke*. 2009;40(8):2911-44.

22. Nakibuuka J, Sajatovic M, Nankabirwa J, Ssendikadiwa C, Kalema N, Kwizera A, et al. (2016) *Effect of a 72 Hour Stroke Care Bundle on Early Outcomes after Acute Stroke: A Non Randomised Controlled Study*
23. Wolfe CDA, Crichton SL, Heuschmann PU, McKeivitt CJ, Toschke AM, et al. (2011) *Estimates of Outcomes Up to Ten Years after Stroke: Analysis from the Prospective South London Stroke Register. PLoS Med 8(5): e1001033. doi:10.1371/journal.pmed.1001033*
24. Kaseke, F., Stewart, A., Gwanzura, L., Hakim, J., & Chikwasha, V. (2017). *Clinical characteristics and outcomes of patients with stroke admitted to three tertiary hospitals in Zimbabwe: A retrospective one-year study. Malawi Medical Journal, 29(2), 177–182.*
25. GEDEFA, B., MENNA, T., BERHE, T. & ABERA, H. 2017. *Assessment of Risk Factors and Treatment Outcome of Stroke Admissions at St. Paul's teaching Hospital, Addis Ababa, Ethiopia. Journal of Neurology & Neurophysiology, 08.*
26. Gebremariam SA, Yang HS (2016) *Types, risk profiles, and outcomes of stroke patients in a tertiary teaching hospital in Northern Ethiopia. eNeurological Sci 3: 41-47*
27. Boeer A, Voth E, Henze T, Prange HW. *Early heparin therapy in patients with spontaneous intracerebral haemorrhage. J Neurol Neurosurg Psychiatry. 1991;54:466–467*
28. Raghuvanshi S. *A Study of Clinical Profile and Subtypes of Acute Ischemic Stroke in a Tertiary Care Center. Int J Sci Stud 2016;4(5):128-131.*
29. Sandercock P, Bamford J, Dennis M, Burn J, Slattery J, et al. (1992) *Atrial fibrillation and stroke: Prevalence in different types of stroke and influences on early and long term prognosis (Oxfordshire community stroke project). BMJ 305: 1460-1465.*
30. Tourangeau A.E. (2005) *A theoretical model of the determinants of mortality. Advances in Nursing Science 28(1), 58–69.*
31. Chang T, Gajasinghe S, Arambepola C. *Prevalence of Stroke and Its Risk Factors in Urban Sri Lanka. Population-Based Study. 2015;46(10):2965-8.*
32. El Tallawy, H. N., Farghaly, W. M., Badry, R., Hamdy, N. A., Shehata, G. A., Rageh, T. A., ... Soliman, W. T. (2015). *Epidemiology and clinical presentation*

of stroke in Upper Egypt (desert area). *Neuropsychiatric Disease and Treatment*, 11, 2177–2183. <http://doi.org/10.2147/NDT.S87381>

33. Okeng'o, K.; Chillo, P.; Gray, W.K.; Walker, R.W.; Matuja, W. Early mortality and associated factors among patients with stroke admitted to a large teaching hospital in Tanzania. *J. Stroke Cerebrovasc. Dis.* 2017, 26, 871–878.
34. Cumming TB, Collier J, Thrift AG, Bernhardt J. The effect of very early mobilization after stroke on psychological well-being. *Journal of rehabilitation medicine.* 2008 Sep 5;40(8):609-14.

Addis Ababa University,
College of Health Sciences,
School of Allied Health Sciences,

Department of Nursing and Midwifery

Annex II: Data Abstraction Tool (English version)

Instructions:

This data abstraction tool is used to extract data from the medical records of all patients (patients with or without stroke) admitted to TASH from July1/2015 to Feb30/2018. It has two parts, part I filled with the total number of charts reviewed per day and part II filled after the CT scan or MRI confirmed diagnosis of stroke. Tick (✓) for the specific answer and for those questions that have fill the space provided option, write all the possible entries.

Address of the Principal Investigator

Name: Ayehu Kassaw Ares

Cell –Phone: +251-921 -25- 08-05

E–Mail: ayehu1213@gmail.com

PART I: Number of Adult Patients

This field entered with the number of charts reviewed for all neurologic new admissions of TASH during the study period.

◆ The total number of all charts reviewed per day: (_____/day___)

PART II: The Stroke Profile

N.B: all the fields in the following table filled for patients with CT scan confirmed stroke.

♣ Site where the data is collected;-				
♣ Date of data abstraction;-				
♣ Data abstractor's name; -			signature _____	
♣ Name of supervisor: -			signature _____	
♣ <u>N.B :Please use the(✓) mark for the option you select</u>				
Patients' socio demographic data	Medical record number (MRN) (_____)	Age	Gender (sex)	M (___)
				F (___)
Marital status	Single (___)	Married (___)	Divorced(___)	Widowed(___)
				Others(___)
				Not recorded(___)
Occupation	Student(___)	Merchant(___)	Government employee(___)	No job(___)
				Others (___)
Residence (region)	Addis Ababa (___)		Tigray (___)	
	Amhara (___)		SNNP (___)	
	Oromia (___)		Others (___)	
Referral site	From hospitals in A.A()		From other regional hospitals()	From emergency Department of TASH()
	dd/mm/yyyy ___ dd/mm/yyyy			not mentioned(___)
clinical presentations (check all the presentations)	Hemiplegia/paresis (___)			Altered cognition (___)
	Speech Alterations (___)			Headache(___)
	Fecal incontinence()			Vomiting(___)
	Urinary incontinence()			Vision difficulties()
	Instability of gait (___)			Dysphagia (___)
	Convulsion (___)			Facial palsy(___)
	pain(___)			Others (___)
Comorbidities	Hypertension (___)		Other cardiovascular diseases (___)	Atrial fibrillation(___)
	Diabetes (write the type)(___)		Cancer (___)	HIV(___)

(check all)	Coronary artery disease ()	Dyslipidemia ()	Others ()
Life style	Alcohol consumption()	Smoking()	Substance abuse ()
	Khat chewing()	Others ()	
types of stroke (based on CT scan /MRI)	Ischemic ()	Others (write the type) ()	
	Hemorrhagic ()		
Clinical presentations	Nursing managements provided (list all the provided managements)		
Hemiplegia	Early mobilization()	Ambulation training	Establish regular exercisers program()
	promote complete bladder emptying()	Positioning()	Bed side physiotherapy()
			Others (write all)-----
Headache And Vomiting	Medication administration()	Input output measurement()	Others (write all) -----
	Fluid replacement()	Positioning()	
Instability of gait	Use of assistive devices ()	Positioning ()	Back massage()
	Skin care()	Encouragement on self-governing ()	Others (write all) -----
Aphasia (Speech Alteration)	yes/no questions, ()	Nodding ()	Writing()
	Thumbs signaling ()	Raising Eye brow()	Others (write all) -----
Dysphagia	NG tube feeding ()	Oral care ()	Wt. measurement()
	Input output measurement ()	Modifications of foods & fluids()	Others (write all) -----
Incontinence	Urinary	Catheterization()	Others (write all) -----
		Prevention of socking()	
	Fecal	Bathing()	Others (write all) -----
		Prevention of socking()	
Pain	Positioning()	Ice bags or cold packs ()	Mobilization()
	Soft tissue message()	Preventing Shoulder Adduction ()	Positioning()

	Medication administration()	Others (write all) -----	
Convulsion	Prevention of self-injury()	Medication administration()	Others (write all)
	Prevention of choking	Prevention of falls()	-----
Altered Cognition	Routine Cognitive assessments()	Education()	Others (write all)
	Rehabilitation()	Positioning()	-----
Others	----- -----	----- -----	----- -----
Patient Out Come	Improved without complications()	Improved with single complication ()	Worsen ()
	Death ()	Against medical advice ()	Others ()
Complications developed	A. Pneumonia ()	Communication impairments()	Urinary tract infection()
	Depression ()	Facial palsy ()	Balance and gait problem()
	Deep venous thrombosis ()	Heart failure ()	Diabetic ketoacidosis()
	Other hospital acquired infections()	Pressure ulcer ()	Others ()
Cause of death	Aspiration pneumonia()	Heart failure()	ICP()
	Intra-cranial hemorrhage()	ARDS()	Others()

Declaration

I, the under signed declare that this thesis work has never been presented in this or another university for graduation and that the source materials used in this research project have been dully acknowledged.

Name:	Signature	Date
AYEHU KASSAW (B.Sc.)	-----	-----

Place of submission; Addis Ababa University, College of Health Sciences, Department of Nursing and Midwifery, Addis Ababa, Ethiopia, 2018

Date of submission; ----2018

This thesis submitted for examination with my approval as a college advisor.

Approved by:

Advisor's name	Signature	Date
1 st .AMSALE CHERIE (RN, B.Sc., MSC.N, PHD)	_____	_____
2 nd . TADDESSE BEDADA (RN, B.Sc., MSC.N)	_____	_____

Place of submission; Addis Ababa University, College of Health Science, Department of Nursing and Midwifery,

Addis Ababa, Ethiopia, 2018