



ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH

**ASSESSMENT OF THE LONG TERM UNMET SUPPORTIVE CARE NEEDS
OF STROKE SURVIVORS AND ASSOCIATED FACTORS IN TIKUR ANBESSA
SPECIALIZED HOSPITAL AND SAINT PAULS' HOSPITAL MILLENNIUM
MEDICAL COLLEGE.**

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**A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF
ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR MASTERS DEGREE OF PUBLIC HEALTH IN
EPIDEMIOLOGY AND BIOSTATISTICS.**



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Duration of project	March 2020– June 2020
Study Area	Tikur Anbessa Specialized Hospital and Saint Pauls' Hospital Millennium Medical College.
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Examiners' Approval Sheet

We, the undersigned, members of the Board of Examiners of the final open defense by Edna Gebremichael Tamrat, have read and evaluated her thesis entitled “*Assessment of the Long Term Unmet Supportive Care Needs of Stroke Survivors and associated factors in Tikur Anbessa specialized hospital and Saint Pauls’ hospital millennium medical college.*”. This is to verify that the thesis has been accepted in partial fulfillment of the requirements for the masters of public health degree in “Epidemiology and Biostatistics”

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Acknowledgement

First and for most I would like to thank God for giving me strength every step of the way. I would like to express my deepest gratitude for my advisors, Mr. Muluken Gizaw, Mr. Sefonias Getachew and Dr. Yared Mamushet for their unreserved contribution, support and advice during the development of this thesis. I would also like to thank my data collectors for agreeing to work with me in this difficult pandemic. Last but not least, I would like to thank my family and friends for their continuous guidance.

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ACRONYMS AND ABBREVIATIONS

CT	Computerized Tomography
CVDS	Cardiovascular Diseases
DAYLs	Disability adjusted life years
DM	Diabetes Mellitus
GBD	Global burden of diseases
GMSAT	The greater Manchester stroke assessment tool
LUNs	Long term unmet needs after stroke
MRI	Magnetic resonance imaging
NCDs	Non communicable diseases
QOL	Quality of life
SPHMMC	Saint Paul's Hospital Millennium Medical College
SRLNS	Self-reported long term needs after stroke
SSA	Sub Saharan Africa
RTPa	Recombinant tissue plasminogen activator
TIA	Transient ischemic attach
TASH	Tikur Anbessa Specialized Hospital
WHO	World Health Organization

ABSTRACT

Background Stroke is a global public health problem with a magnitude of 13.7 million new stroke cases and 25.7 million stroke survivors. Even though the exact burden of Stroke in Ethiopia remains undocumented, it has been estimated that stroke deaths in Ethiopia reached 6.23% of total deaths in 2017. Identifying the unmet needs of stroke survivors is essential to design interventions that can potentially hasten their recovery process and improve their quality of life. Hence, the aim of this study is to determine the Long Term Unmet Supportive Care Needs of Stroke Survivors in Tikur Anbessa specialized hospital and Saint Pauls' hospital millennium medical college.

Method Institution-based quantitative cross-sectional study was conducted on Stroke Survivors who came to the neurology outpatient department for a follow up in Tikur Anbessa Specialized Hospital and Saint Paul's Hospital Millennium Medical College. A total of 422 participants were included in the study. Data was entered on EPI info and analyzed using SPSS version 25. The dependent variable long term unmet need was dichotomized as no need and unmet need. Binary and multivariable logistic regression were done to examine the predictors against the outcome of interest.

Result Among the 422 participants which were included in the study 57.6% were male. The median age of participants was 54.5 years with IQR (42.75-62.25) years. Three hundred sixty (85.3%) of the respondents had Ischemic stroke. Seeking information about stroke and how to avoid another recurrence (98.6%), concerns about public transport utilization (80.6%) and needing advice about improving diet (79.4%) were the most frequently reported unmet needs. Long term unmet supportive care needs of stroke survivors were significantly associated with lower educational status (AOR= 6.5; 95% CI 2.1,20.5), time since last stroke attack (AOR=2.0; 95% CI 1.1, 3.5, being hypertensive AOR= 5.3; 95% CI 3.1, 9.1), having heart diseases (AOR=2.6; 95% CI 1.4,4.9) and physiotherapy utilization (AOR= 3.4; 95% CI of 1.839,6.369).

Conclusion The results from this study suggest significant unmet needs and gaps in clinical and rehabilitation care in long-term stroke patients. High levels of unmet needs were reported by people who had their last stroke attack within 6-12 months, with low educational level and have comorbidities. The development of services to meet long-term needs among stroke survivors is warranted.

Key words unmet needs, supportive care, long term, stroke, Ethiopia

1. Introduction

1.1. Background

A report by the world health organization (WHO) in 2018 stated that, non-communicable diseases (NCDs) tend to stay longer and are the consequences of a combination of genetic, physiological, behavioral, and environmental factors. The leading causes of NCDs are cardiovascular diseases, cancer, chronic obstructive pulmonary diseases, and diabetes mellitus (1).

Stroke is a cardiovascular disease caused by interruption of blood supply to the brain due to a blood clot or hemorrhage secondary to rupture in blood vessels. The interruption of blood supply damages neurons in the brain, causing sensory motor deficits and other neurological manifestations like confusion, difficulty of speaking or seeing with one or two eyes, and loss of balance or coordination. The WHO classifies stroke types into ischemic Stroke, intracerebral hemorrhage, and subarachnoid hemorrhage(2).

Stroke patients mostly present with unilateral or bilateral motor deficits, speech difficulties, confusion, headache, and vertigo. Stroke can be diagnosed with clinical signs and symptoms along with confirmatory diagnostic imaging techniques like CT scan and MRI of the brain. In addition to providing acute treatments like anti-platelets, anticoagulants, thrombolytic therapy using rtPA, and thrombectomy according to the type of Stroke, general acute supportive care treatments are provided for all types of strokes (3).

Proper and integrated stroke management intends to reduce mortality, complications, hospital stay, and to improve the prognosis of the patient. The prognosis of acute Stroke could be improved by providing targeted interventions for modifiable risk factors like elevated blood pressure, tobacco use, physical inactivity, alcohol consumption and diet by promoting physical activity, healthy diet, smoking cessation, early detection and better control of hypertension, prevention of complications and good comprehensive supportive stroke care decreases the morbidity and mortality of acute Stroke(4).

Considering the long term complications of Stroke, survivors need a comprehensive supportive and palliative care in addition to the clinical treatments. The WHO identified detection, screening, and treatment of NCDs as well as palliative care as crucial components of the response to non-communicable diseases. According to the WHO, "Supportive care is defined as rendering essential services that satisfy stroke patients' physical, psychological, social, informational and spiritual

needs over the entire illness trajectory." Supportive care is an essential buffering component of stroke survivors that helps to regain emotional stability, social adjustment, cognitive function, body image, future perspective, and physical recovery. Palliative care is a patient and family-centered care that helps improve quality of life by providing relief from stress and suffering. Palliative care is appropriate for patients and families of patients facing the problem associated with a life-threatening illness. It takes bodily, emotional, intellectual, societal and spiritual needs into consideration (5).

According to a report by the WHO in 2017, Stroke accounts for around 39,571 deaths in Ethiopia, which is consistent with other hospital-based studies(6). The management approach for acute stroke patients admitted to a hospital is according to standard medical guideline based on the stroke type, which consists of treatment of underlying conditions and other complications as appropriate(1). Forty-four percent of strokes in Ethiopia were hemorrhagic, which shows a high discrepancy with western countries in which around 85% of strokes were ischemic(7). As a result, the Ethiopian Federal Ministry of Health has identified hypertension as one of the significant risk factors for NCDs. It is also working on promoting physical exercise by facilitating car free days and encouraging a healthy diet to change the unhealthy habit and lifestyle of the community. However, a lot is expected to be done on supportive care for those who are suffering from long term complications of Stroke (8).

1.2. Statement of the problem

Non communicable diseases (NCDs) are responsible for 41 million deaths globally, of which 15 million are between 30 and 69 years of age. Among all deaths caused by non-communicable diseases, cardiovascular diseases take the major portion. Low and middle-income countries (LMICs) are responsible for 85% of deaths caused by non-communicable diseases worldwide (9). NCDs have become a significant public health problem in Ethiopia, accounting for an estimated half of the total annual mortality and 46% of total national disease burden in 2015 (10).

There were around 14 million new cases of Stroke and 80.1 million prevalent cases of Stroke in 2016(11). Stroke is the second leading cause of death following ischemic heart disease, being responsible for 8.76 million deaths, and taking lives every five seconds globally. The global economic cost of adult stroke is more than 25 billion dollars per year. Stroke is the second most common cause of adult disability (4.6%) of the global Disability Adjusted Life Years (DALYs). Without interventions, stroke mortality is estimated to rise to 12 million deaths by the end of 2030(12). The increase in the magnitude of Stroke, thus calls the urge to identify their unmet needs to accelerate their recovery. Developing countries account for 85% of the global stroke deaths and 87% of the global Stroke DALYs, which is 3.5-3.8 times higher than in developed countries(13).

In sub-Saharan Africa (SSA), the development of appropriate service provision is limited by the lack of vigorous estimates of long-term outcomes after Stroke. Increased problem of unrestrained vascular causes due to low screening and treatment modalities, unstructured as well as unstable acute stroke care in addition to scarce supportive care services were described as risk factors for poor prognosis after Stroke. Besides, the prevalence of stroke survivors in SSA was reported to be 14.6/1000 people (14). The number of stroke survivors demanding rehabilitation is massive. Stroke primarily marks young and industrious subdivision of the people in developing countries. It puts a significant burden, which might unsettle the recent unassertive financial advances in these areas of the world. Countries such as Ghana and Ethiopia have been reported to have physiotherapists of 0.1 per 100,000 people, and South Africa has 6.7 per 100,000 people (15). Long term supportive care service delivery should be patient oriented and designed compatible with the local situation. Developing patient-centered services for stroke survivors in the long term necessitates an understanding of the needs, experiences, and priorities of those living with Stroke, Therefore, assessing the needs of stroke survivors in Ethiopia's set up is essential to improve stroke survivors' quality of life(16).

Although the exact burden of Stroke in Ethiopia remains unknown, it is estimated to account for 39,571 of total deaths in 2017. Mortality caused by NCDs accounts for 46% of the deaths per year and is projected to increase by up to 70% by 2040 (8). Even though WHO has identified palliative care as one of the responses for the fight against non-communicable diseases, Ethiopia's current national policy mainly focuses on prevention, screening, and management of non-communicable diseases. The Ethiopian national guideline for the management of NCDs indicates the transfer of patients immediately to a hospital if suitable service is not available. According to the guideline, emergency management includes coma care, fluid management, and control of BP. In contrast, long term management recommendations include physiotherapy and treatment of risk factors like hypertension and diabetes mellitus(DM)(7). Regardless of the guideline's clear recommendations about the importance of rehabilitation services for stroke survivors, according to a report from the world confederation of physical therapists, Ethiopia has physiotherapists of only 0.1 per 100,000 people. This shows there is a high mismatch in long term stroke rehabilitation care need and delivery(16). Even though the need for palliative care for cancer and chronic kidney failure patients is documented, supportive care services for stroke survivors is not given much attention by the government(7).

To the best of our knowledge, we did not get studies conducted in Sub-Saharan Africa, including in Ethiopia, which determines the unmet supportive care needs of stroke survivors. As there is a significant knowledge gap in the area of stroke research in general in Ethiopia, this study intends to fill the existing knowledge gap on the long term unmet needs of stroke survivors in the Ethiopian context to decrease lost productivity, premature deaths as well as long term disability and help the adult productive segment of the population suffering from the long term consequences of Stroke.

1.3. The Rationale of the study and Significance of the study

Africa has the highest burden of hypertension and appears to have the highest incidence, prevalence, and case fatality of Stroke. Despite the proposition that strokes are the results of increased age expectancy of the population, Africans tend to experience strokes at a younger age and have worse outcomes (17)(18). This study assessed the magnitude of long term unmet supportive care needs of stroke survivors and factors associated with this needs. This will help enhance the quality of life by understanding the full impact of the unmet needs of the stroke survivors as it is crucial and clinically of prime importance throughout their continuum of survivorship and recovery process to offer timely and effective interventions. Identifying stroke survivors' unmet supportive care needs clarifies where actions and resource allocations are necessary for the healthcare setting to help the patients to overcome their difficulties.

This study will help policymakers in designing context specific appropriate strategies for addressing the long term unmet needs of stroke survivors. It will also help researchers and the scientific community in updating their knowledge on the current needs of stroke survivors in 2 largest hospitals in Addis Ababa, Ethiopia. As Stroke affects the younger adult population in low and middle-income countries compared with the high income countries, identifying the unmet needs for a quick recovery is vital to reduce the long term economic impact of the diseases.

2. Literature review

2.1. The magnitude of the problem

According to a review of data until 2016, which was published in 2019, globally, there were around 80.1 million prevalent cases of Stroke and 11- 14 million new stroke cases. Stroke is the second leading cause of death and a major cause of disability throughout the world. Globally 70% of stroke incidences occur in low and middle-income countries. In the last 40 years, high-income countries managed to decrease the incidence of Stroke by 42%, unlike low and middle-income countries in which the incidence has more than doubled. 84% of stroke patients in low and middle-income countries die within 3 years of diagnosis, while only 9% die in high-income countries(19).

Low and middle-income countries (LMICs) now bear the highest burden of Stroke around the globe. Developing countries account for 85% of the total global stroke death and 87% of the global Stroke DAYLS, which is 3.5-3.8 times higher than the developed countries(20). In Middle East Asia, the incidence rate of Stroke ranges from 22.7-250/100,000 populations per year. The overall case fatality rate within one month was 12-32%. The incidence of first ever and recurrent Stroke in the Middle East was 22.7 and 180 per 100,000 populations per year, respectively(21).

Due to the current epidemiologic transition, globalization, and adoption of western culture, there is an elevation in incidence of Stroke with high mortality in low and middle-income countries. This was aggravated by poor access to the health facility and high intra-hospital stroke mortality. In addition to these, unavailability and poor access to rehabilitation services increase the mortality and morbidity and makes the recovery process lengthier when compared to high-income countries (22).

Even though the exact burden of Stroke in Ethiopia is unknown, it has been estimated to be increasing. Stroke accounts for 2.5% of all hospital admissions and 13.7% of medical admissions(23). According to the GBD report of 2015 in Ethiopia, the all cause crude years of life lost rate was 32,397 per 100,000 people, non-communicable diseases (NCDs) caused 8,823 per 100,000 people. The age-standardized years' life lost percentage contribution of NCDs increased from 27% in 1990 to 41% in 2015. NCDs were the leading contributor to age-standardized death rates in Ethiopia, causing 710.9 deaths per 100,000 populations. Hemorrhagic Stroke was the fifth leading cause of death, which accounts for 62.7 deaths per 100,000 people(8).

According to a report by the WHO in 2017, stroke deaths in Ethiopia reached 39,571 or 6.23% of total deaths. The age-adjusted death rate of Stroke accounts for 89.82 per 100,000 population. NCDs account for 42% of the total deaths per year, and by the year 2040, they are projected to account for almost 70% of the country's disease burden. NCDs burden accounted for 17% of the total deaths in 1990(24). Stroke affects individuals at the peak of the productive age group. Despite its enormous impact on socioeconomic development, this emerging public health crisis has received very little attention to date (25). In Ethiopia, no study has been conducted to assess the unmet supportive care need for stroke patients. The previous studies conducted about Stroke were using variable methods of classifying stroke types and about the in hospital mortality rates in different regions.

2.2. Supportive care need of stroke survivors

The WHO defined palliative care as an approach that improves the quality of life of patients and their families who are facing problems associated with life threatening illness. It prevents and relieves suffering through early identification, correct assessment, and treatment of pain and other problems(26). The goal is to improve the quality of life for both the patient and the family. It is appropriate at any stage and can be provided along with curative treatment. The term palliative care is used interchangeably with supportive care, and a clear distinctive difference between the two is not mentioned. Another similar term with supportive and palliative care is Hospice. Hospice is delivered as an end life care. Hospice care focuses on five topics: communication, collaboration, compassionate caring, comfort, and cultural (spiritual) care. The end of life treatment in Hospice differs from that in hospitals because the medical and support staff are specialized in treating only the terminally ill patients. Hospice is a type of care provided without curative intent and is usually provided when the patient has 6 months or less to live(5).

According to WHO recommendations, the ratio of at least one neurologist for 50,000 individuals in a state is needed to provide the appropriate care for stroke survivors. On the other hand, in SSA in the best circumstance, it is one for 500,000 in countries like Ivory Coast and Senegal. In Ethiopia, the ratio was one for 10 million people 10 years ago; it is now one for 5 million. Neurology training programs in sub-Saharan Africa are relatively limited in number and have several unmet needs including a slight team of faculty as well as a chance to regulate curricula and financing of program's. The lack of stroke units all over SSA, health professionals and limited

health care resources are contributing to the high stroke related mortality and the overall recovery process of stroke survivors(22).

A qualitative study conducted in the UK stated that stroke survivors felt not backed up. The study participants were questioned in the course of changeovers between units, discharge home, waiting for therapies to begin, and when services withdrew. The majority of the respondents indicated that the therapy they were receiving didn't have sufficient intensity, frequency, as well as length, which was perceived as an unmet need. Ongoing visual, and hearing disorders appeared to be another unresolved need that respondents felt had not been adequately addressed (27).

Another quantitative community based study which was conducted in the UK reported that almost half of the stroke survivors who participated in the study reported long term unmet needs. Stroke survivors related unmet needs with physical as well as emotional difficulties by which of those participants who had experienced problems related to mobility, falls, pain, and incontinence, unmet needs were reported by 25%, 21%, 15%, and 21% of respondents, respectively and of those with stroke-related emotional problems, 39% of the respondents reported unmet needs. Higher proportions of unmet needs were reported to fatigue, memory, and concentration. More than half of the study participants reported wanting more information about the cause and prevention of recurrence of Stroke(28). Both studies conducted in the UK stated that less than half of the study participants had a longer term unmet need, which is potentially attributed to the availability of rehabilitation centers and the health care delivery system of the country.

A national survey which was carried out in Ireland which used the self-reported long term unmet needs tool (SRLNS), stated that over 80% of respondents had no long term unmet needs after Stroke and that they are contented with the overall recovery progression following Stroke. But common difficulties conveyed after Stroke involved movement complications, emotional difficulties, tiredness, loss of attention, and arm dysfunction. Participants who declared problems with speech, reading, as well as writing were more likely to receive speech and language therapy(29).

Stroke survivors may face impairments, such as fatigue, cognitive disorders, mood disturbances, and reduced quality of life (30). The beginning as well as development of exhaustion were subjective for each respondent, being subjective by the individual experience of ongoing residual symptoms, age, the understanding of comorbidities, weakness due to increased age and public

situations. Due to tiredness and not having role, study respondents complained about several feelings such as guilt, reliance as well as decreased self-confidence. Originally, blaming self was recognized due to an incapacity to accomplish pre-stroke parts. These emotional state of blaming self were stated by participants who were worried that they were not as emotionally existing to their loved ones as pre Stroke, due to their lethargy or wanted to sleep more(31).

2.3. Determinants of unmet supportive care needs of stroke survivors

2.3.1. Sociodemographic characteristics

Previous literatures state that stroke recovery is greatly affected by the socioeconomic status of survivors. A study in south London mentioned that there is a 75% chance of poor stroke outcomes among survivors with low socioeconomic status compared with the ones with high socioeconomic status after controlling for other variables. A study conducted in 8 diverse European nations found that the risk of Stroke amplified by 9% per year in men and 10% per year in women(32). The burden of Stroke in individuals younger than 65 years showed an increment with in the last few decades, with the incidence increasing worldwide by 25% among adults aged 20 to 64 years (20). There is a concerning shift in the overall stroke burden towards younger age groups, particularly in low- and middle-income countries. About 12% of strokes in India occur in people younger than 40 years(33). On the other hand, a cross sectional study conducted in Germany about the Social work support and unmet social needs in life after stroke stated that age and sex were similarly distributed in patients(34).

2.3.2. Physiotherapy

According to a report from the world confederation of physical therapy; medical support, political support, service demand or waiting list, economic considerations and educational level were one of the factors identified as barriers to physiotherapy utilization (35). A cross-sectional study which was conducted in West Africa stated that the physiotherapy utilization of stroke survivors is low. Among those who were on physiotherapy, most were from urban residency(16). People with Stroke should receive physiotherapy for at least 45 minutes every day until they start gaining their motor functions back. Most people recover quickly, given the proper type of care is provided with an adequate amount. After approximately three months, the recovery period usually slows down. After this time, improvements usually happen. It is recommended that if stroke survivors have ongoing difficulties, they should continue to have rehabilitation (including physiotherapy) for as long as they need (36). A systematic review conducted in South Africa on the current rehabilitation

services and physiotherapy stated that there is a need to focus on physiotherapy stroke rehabilitation services and on barriers that hinder full social integration of the patient, including return to work and improving quality of life(37).

2.3.3. Clinical characteristics

A study conducted in Germany to assess the unmet social needs of stroke survivors stated that patients who had comorbidities like diabetes mellitus, hypertension and recurrent stroke reported more unmet social support needs than those participants with no comorbidities. According to the study findings patients with comorbidities reported at least one unmet need. In addition to reporting negative impacts of stroke on their lives, participants in the study also reported more unmet needs when having greater Modified Rankin Scale than patients with less disability measure (34). The Modified Rankin Scale has been used in scientific study for above 30 years and is a common standard for assessing functional outcomes in patients with stroke. Multiple studies have shown that the MRS correlates with physiological indicators such as stroke type, lesion size and neurological impairment as assessed by other stroke evaluation scales.

Measure of disability was found to be directly associated with decreased quality of life and wanting more physical and psychosocial supportive care needs. A study conducted in Kenya stated that males had higher score than females in all the domains except in physical functioning and that the scores decreased with an increase in age in most domains(38). Another study conducted in South Africa on the quality of life of stroke survivors in six months' post stroke with a total sample of 100 participants consisted of 50% men, and 50% women with a mean age of 61 stated that 35% had problems with mobility and self-care. In contrast, 42% had severe problems with everyday activities, and 37.8% expressed having anxiety and depression. Quality of life at two months, and urinary incontinence were significant predictors of quality of life at six months (39).

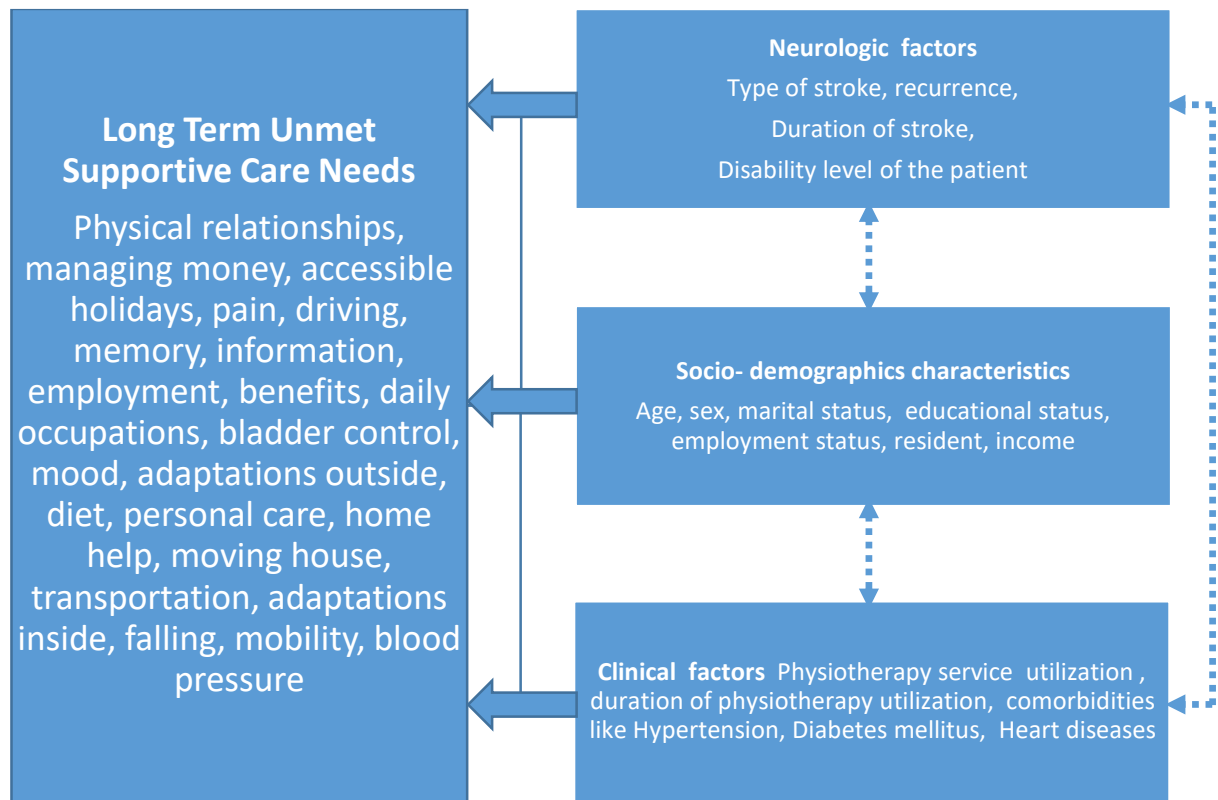
2.4. Long Term Unmet Needs After Stroke Tool

Several tools have been used to capture unmet needs in the post-stroke population(40). The Stroke Association survey was designed to identify unmet needs in stroke survivors, but the survey tool has not been psychometrically evaluated. The Southampton Needs Assessment Questionnaire, which is not a Stroke specific tool, and the Stroke Impact Scale tools' response rate, was low. The self-reported unmet needs after stroke tool(SRLNS) contained fewer domains compared with other Stroke specific tools(28). The Greater Manchester Stroke Assessment Tool (GM-SAT) has been

intended for an evaluator to work with the stroke survivor to detect and give solutions for unmet needs using set of rules. However, it takes around 73 minutes for a single patient to complete the questionnaire (41). The Long-term unmet needs after stroke questionnaire (LUNS) tool is alone as a self-completion questionnaire with well described acceptability, validity, and reliability to identify the long term unmet supportive care needs in other countries. The LUNS tool has been reported to be quick for stroke survivors to complete and easy to interpret. Within the stroke population, it can be used practically to identify unmet needs relating to either Stroke or comorbidities (42).

The LUNS is a 22 item questionnaire that measures the long term complications affecting physical social and mental wellbeing in the particular context of long term stroke care. The center of aging and rehabilitation developed LUNS as part of the National Institute for Health Research funded program grant in the Bradford Institute for Health Research in the United Kingdom. It has been recommended by the national stroke strategy of the United Kingdom and accelerated stroke improvement program, LUNS can be used to identify the longer-term unmet needs after Stroke for individual patients during post stroke review, and it also helps to evaluate how well a service is meeting needs of stroke patients within a service. Even though the LUNs questionnaire has neither been validated nor translated in any local language in Ethiopia, the tool has been translated and validated in other countries with other languages. It is reliable and valid (43).

2.5. Conceptual framework



- Broken arrows are used to indicate relationships that exist between variables, but will not be assessed for this study.

Figure1: Conceptual frame work to identify the Long Term Unmet Supportive Care Needs among adult stroke survivors adopted and amended from different literatures for this study (23-35).

2.6. Research questions

1. What is the magnitude of the Long Term Unmet Supportive Care Needs of Stroke Survivors in TASH and SPHMMC?
2. What are the factors associated with the Long Term Unmet Supportive Care Needs of Stroke Survivors in TASH and SPHMMC?

3. OBJECTIVES

3.1. General objective

To assess the Long Term Unmet Supportive Care Needs of Stroke Survivors in Tikur Anbessa Specialized Hospital and Saint Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia.

3.2. Specific objectives

1. To describe the long term unmet supportive care needs of stroke survivors
2. To assess the factors associated with long term unmet supportive care needs in stroke survivors

4. METHODS AND MATERIALS

4.1. Study area and period

The study was conducted in Tikur Anbessa Specialized Hospital (TASH) and Saint Paul's Hospital Millennium Medical College (SPHMMC) in Addis Ababa, the capital city of Ethiopia. Addis Ababa lies at an elevation of 2,200 meters (7,200 ft.) and is located at 9°1'48"N 38°44'24"E / 9.03000°N 38.74000°E. The hospital is a teaching hospital of Addis Ababa University and a major referral center from all corners of the country. TASH treats different neurologic cases on the neurology outpatient department(OPD) twice a week and allocated one additional day to treat stroke survivors in the OPD. The neurology OPD of TASH is found on the first floor of the hospital and treats an average of 30 patients per day before the COVID 19 pandemic. SPHMMC is the second largest hospital in Ethiopia following TASH. It treats all neurologic cases 4 days a week in the neurology OPD. All stroke survivor's attending Neurology OPD for follow up in TASH and SPHMMC who were available during the study period were included in the study. The neurology OPD of SPHMMC is found on the ground floor of the first building and patients are first treated by the nurses who work on the neurology OPD. The study period was in 3 months' period from March 2020 to June 2020.

4.2. Study design

Institution based cross sectional study was conducted.

4.3. Populations

4.3.1. Source population

All stroke survivors coming for a follow up in neurology outpatient department of TASH and SPHMMC.

4.3.2. Study population

Stroke survivors above 18 years' old who were diagnosed with stroke at least 6-months prior to the time of the study period.

4.4. Eligibility criteria

4.4.1. Inclusion criteria

Stroke survivors who were 18 years of age and above, had their last stroke attack at least 6 months prior to the study period and started follow up at neurology outpatient department of TASH and SPHMMC.

4.4.2. Exclusion criteria

- Stroke patients who were not able to represent themselves at the same time who didn't have anyone to represent them as a caregiver.
- Stroke survivors who had their last attack within the past 6 months were excluded from study.

4.5. Sample size determination and sampling technique

The sample size was determined using single population proportion formula using Epi info version 7.2.2.6 software. Since we couldn't find any previous studies conducted to determine the unmet supportive care needs for stroke survivors in Africa, sample size for the general objective was calculated considering $P=0.5$ to attain the maximum sample size. In which P represents the percent or proportion of stroke survivors who have long term unmet supportive care needs

$$n = \frac{z_{\alpha/2}^2 p(1 - p)}{w^2}$$

- Where, α = The level of significance which can be obtained as 1 confidence level
- w = Maximum acceptable difference
- $z_{\alpha/2}$ = The value under standard normal table for the given value of confidence level
- p = Population Proportion

$$n = 1.96^2 * 0.5 * 0.5 / 0.05^2$$

$$n = 384$$

By considering non response rate, 422 stroke survivors were included in the study for the first general objective. The sample size for the specific objectives was also calculated using Epi info version 7.2.4.0 considering different factors but since the total sample size calculated for the general objective had the largest value, **422** stroke survivors was included in the study.

4.6. Sampling procedure

All stroke survivors who were available at the TASH neurology OPD and SPHMMC neurology OPD during the study period were included in the study. Due to the current COVID 19 pandemic, the patient flow was reduced so all patients that are eligible were included in the study. During selection of the participants, if the person was not eligible to be included or not willing to participate, the data collector proceeded to the next eligible person.

4.7. Variables

Dependent variable – Long Term Supportive Care Needs (Physical relationships, managing money, accessible holidays, pain, driving, memory, information, employment, benefits, daily occupations, bladder control, mood, adaptations outside, diet, home help, moving house, transportation, adaptations inside, falling, mobility, blood pressure) The mean of these variables was calculated and further dichotomized by the mean to make it suitable for logistic regression.

Independent variables

Socio demographic characteristics; age, sex, marital status, educational status, employment status, residence, income

Clinical factors; Physiotherapy service utilization, comorbidities like Hypertension, Diabetes mellitus, Heart diseases, Disability level

Neurologic factors; type of stroke, duration since first attack of stroke and history of recurrence

4.8. Data collection process

Data concerning patient's socio-demographic and clinical characteristics and also supportive care needs of the patient was assessed using a standard questioner. The questionnaire was translated into Amharic and was tested by a pretest. The LUNs is a standardized instrument for measuring stroke patients' longer term unmet needs. A total number of 22-items are included in the questionnaire. The National Stroke Strategy in the UK only states that needs may continue in the long term without suggesting when this period may start or end. The National Clinical Guideline

for Stroke refers to ‘long term’ as 6 months or longer after stroke, which marks the period immediately after active rehabilitation when maximum physical recovery is considered to have been achieved(44). So Data was collected from stroke survivors after 6 months since their last attack. Level of disability of the stroke survivors was also measured by using The Modified Rankin Scale (mRS), which assesses disability in patients who have suffered a stroke. A score of 0 is no disability, 1 is No significant disability despite symptoms; able to carry out all usual duties and activities , 2 is Slight disability; unable to carry out all previous activities, but able to look after own affairs without assistance, 3 is Moderate disability; requiring some help, but able to walk without assistance , 4 is Moderately severe disability; unable to walk without assistance and unable to attend to own bodily needs without assistance ,5 is Severe disability; bedridden, incontinent and requiring constant nursing care and attention and 6 is death. Data was collected by nurses who have bachelor’s degree in nursing and working in the neurology clinic of TASH and SPHMMC. Training was also given for the data collectors for three days on the contents of the questionnaire, identification of patients based on the inclusion or exclusion criteria, how to approach and get consent from patients by the principal investigator. The principal investigator supervised the data collection process every twice a week to monitor the data collection procedure.

4.9. Operational definitions

A stroke survivor is a person who has had a stroke attack previously and is not currently receiving acute comma care.

Care giver is an adult who takes care of the stroke survivor.

An unmet need was defined as ‘a problem that was not being addressed or one that was being addressed, but insufficiently’.

Long term unmet need- unmet needs that exist at least after 6-month post stroke.

Quality of life is the state of wellbeing that is a composite of two components: the ability to perform everyday activities that reflect physical, psychological, and social well-being; and patient satisfaction with levels of functioning and control of the disease

4.10. Data processing and management

The collected data was coded, entered, cleaned, analyzed and checked for its clarity, consistency and completeness up to the end of each data collection period. Data was entered using Epi INFO Software Version 7.2.4.0

4.11. Data analysis

Data were checked for completeness, consistencies and outliers by the principal investigator and entered into Epi INFO version 7.2.4.0 software package. Then data was exported to Statistical Packages for Social Sciences (SPSS) version 25 for analysis. The analysis ranged from simple descriptive statistics to multivariable logistic regressions.

The descriptive part was summarized using frequency distribution and proportions for categorical variables and for continuous variables like age and income level were described using median and interquartile range since they were not normally distributed.

The 22 variables that were included in the LUNS tool were combined into one by calculating the mean. The mean of these variables was further dichotomized by calculating its population mean as having no unmet need and having unmet need. If a patient reported unmet needs that were above the population mean, it is considered as having unmet need. On the other hand, if a patient reports unmet needs below the mean value it was considered as having no unmet need.

The association between independent variables and unmet need categories (no & unmet need) was first examined using bivariate logistic regression analyses. To identify associated factors of supportive care needs multi-variable logistic regressions were used. Any variable with p-value of < 0.2 on bivariate test was candidate for multivariable model along with variables that are clinically significant. After inserting the candidate variables to the model, interaction among the variables in the model was also checked.

After model building the goodness of fit of the model was checked using Hosmer & Lemeshow test which was considered as the most reliable test, other model test used was omnibus test (to compare the new model with baseline model). A p-value of < 0.05 was used to declare a statistically significant association and also 95% (CI) was constructed.

4.12. Ethical considerations

Ethical approval was obtained from the research and ethical committee of the School of Public Health, College of Health Sciences, Addis Ababa University. Permission was also secured from Anne Forster on behalf of Bradford Teaching Hospitals NHS Foundation as the tool couldn't be transmitted without prior written permission. Furthermore, the ethical review board of SPHMMC

and TASH neurology department reviewed the proposal and another ethical approval was received from both. The head nurse of the neurology clinic of TASH and SPHMMC was informed about the objective of the study and written permission was obtained before starting data collection. Any information learned from this study which might identify the participant was kept confidential. Survivors with communication difficulties gave the information by the help of their care givers. For caregivers or stroke survivors who were non-literate the consent was read to them and for literate caregivers written informed consent was obtained before participating in this study. The findings from this study will help to find out the unmet needs of stroke survivors and address the policy implications to support the area. This will help health professionals to assess the unmet needs and to address the identified gaps.

4.13. Dissemination of findings

After completion of this thesis, the final result will be submitted to Addis Ababa University College of Health Science School of public health. The finding will also be submitted to the OPDs of TASH and SPHMMC. The results of the study will be presented during thesis defense. It will be steered for the local community of AAU's academic and research community, and for relevant public and private stakeholders. The findings of the research will also be conversed through presentation in workshops and meetings, a brief summary of the key findings and recommendations will also be developed and shared with conference participants. Abstracts from the study will be presented on different seminars national and international scientific conferences. And publication of the findings of the research will be made in an international peer reviewed journals.

5. Result

5.1. Sociodemographic characteristics

A total of 422 participants were selected for this study. More than half of the participants (57.6%) were male. Three hundred thirty-eight (80.1%) of the study participants were from urban residency and of those, the majority (72.7%) were from Addis Ababa. Around three fourth of the total study respondents stated that they are orthodox religion followers. Two hundred eight (58.2%) participants attended secondary school and above. The overall median age was 54.5 years with IQR (42.75-62.25) years and the overall income had a median value of 4000 Ethiopian birr and with an IQR of (2000-6000) Ethiopian birr.

Table 1: Sociodemographic characteristics of stroke survivors in TASH and SPHMMC, 2020

Variables	Categories	Frequency(n=422)	Percentage(%)
Sex	Male	243	57.6
	Female	179	42.4
Residence	Urban	338	80.1
	Rural	83	19.7
Region	Addis Ababa	307	72.7
	Oromia	77	18.2
	Amhara	19	4.5
	Others	19	4.5
Religion	Orthodox	323	76.5
	Protestant	45	10.7
	Catholic	39	9.2
	Muslim	15	3.6
Marital status	Married	282	66.8
	Never married	50	11.8
	Divorced	32	7.6
	Living together	58	13.7

Highest educational level	Illiterate	40	9.5
	Can read and write	80	19
	Primary school	56	13.3
	Secondary school	101	23.9
	Diploma and degree	107	25.4
	Masters and above	38	9
Occupation	Housewife/unemployed	56	13.3
	Student	46	10.9
	Farmer	47	11.1
	Daily laborer	22	5.2
	Government employee	118	28
	Trader	68	16.1
	Private/NGO	65	15.4
Age	<45	72	17.1
	45-54	67	15.9
	55-64	105	24.9
	65-74	105	24.9
	75-84	52	12.3
	>85	21	5.0
Income	>500	33	7.1
	500-2500	106	25.3
	2500-5000	155	37
	5000-10,000	118	28.2
	>10,000	10	2.4

5.2. Clinical characteristics of participants

Ischemic stroke was the most commonly reported type of stroke accounting for 360(85.3%) of all the total stroke types. More than half (62.6%) of the stroke survivors presenting to the neurology OPDs of the hospitals where the study took place for a follow up had their last stroke attack before 12 months. One hundred ninety-two participants reported a history of stroke recurrence. Of all the comorbidities reported, hypertension consisted the most part being reported by 61.4% of the total study participants followed by diabetes mellitus which was reported by 27%(114) of the stroke survivors. According to the Modified Rankin Scale measure of disability,37.7%(159) of the respondents had no significant disability despite symptoms, whereas 3.8%(16) of the stroke survivors had severe disability.

Table 2: Clinical characteristics of stroke survivors in TASH and SPHMMC, 2020

Variables	Frequency(n=422)	Percentage(%)
Stroke type		
Ischemic	360	85.3
Hemorrhagic	62	14.7
Time since last stroke attack		
6 months	50	11.9
6-12 months	108	25.5
>12 months	264	62.6
History of recurrence		
Yes	192	45.5
No	230	54.5
History of hypertension		
Yes	259	61.4
No	163	38.6
History of diabetes mellitus		
Yes	114	27

No	308	73
History of heart diseases		
Yes	82	19.4
No	340	80.6
Measure of disability		
No symptoms at all	59	14
No significant disability despite symptoms	159	37.7
Slight disability	122	28.9
Moderate disability	44	10.4
Moderately severe disability	22	5.2
Severe disability	16	3.8
Death	0	0
Physiotherapy utilization		
Yes	157	37.2
No	265	62.8

5.2.1. Physiotherapy utilization

Only 157(37.2%) of the stroke survivors who were included in the study stated that they utilize physiotherapy services. Among those who use physiotherapy 8.3%(13) were receiving therapy every day excluding weekends and holidays, meanwhile 35.7% of the participants reported that they use physiotherapy 2-3 times per week for 30-45 minutes. On the other hand, 56.1%(88) of the respondents stated that they use physiotherapy less than 2 times a week or irregularly. More than half of the participants 62.8%(265) stated that they don't use physiotherapy services. Financial problems, long distance and unsatisfactory services in the physiotherapy centers were reported by 38.2%,21% and 40.8% of the study participants as reasons not to use physiotherapy.

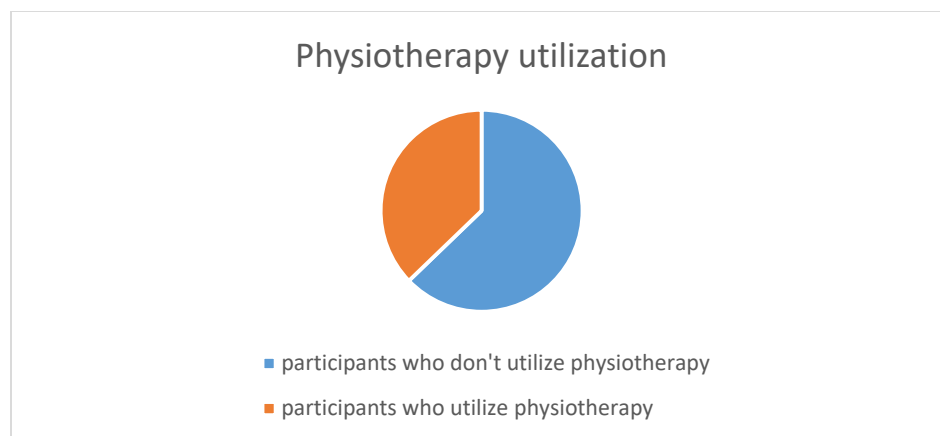


Figure 2: Physiotherapy utilization of stroke survivors in TASH and SPHMMC, 2020.

5.3. The magnitude of unmet supportive care needs

All of the study participants who were included in the study reported at least one unmet need. Almost all of the participants (416) stated that they need more information about their stroke (why it happened and how to avoid having another one). Two hundred seventy-three (64.7%) of the participants stated that they haven't gotten their blood pressures checked and they would like to get checked. Needing advice on how to manage pain (getting regular pain and finding no solution to ease it) was also another unmet need that was reported by 54.5%(230) of the total study respondents. Needing help, problems with bladder / bowel (accidents, constipation, diarrhea), need help with cutting toenails, washing oneself or dental care (including dentures) and concerns about getting back to driving were the least reported unmet needs. The magnitude of each unmet need is summarized in the table below.

Table 3: The magnitude of unmet supportive care needs in TASH and SPHMMC, 2020.

Variables	Frequency(n=422)	Percentage(%)
Need information about stroke	416	98.6
Need blood pressure checkups frequently	273	64.7
Need help managing pain	230	54.5
Worsening movement disorders	180	43

Afraid of falling again	297	70.4
Need adaptations/aids inside home	224	53.1
Need adaptations outside home	212	50.2
Need advice about driving again	110	26.1
Need advice on traveling on public transportation	340	80.6
Need help in completing chores	231	54.7
Need to move to another home	250	59.2
Need advice about improving diet	335	79.4
Need advice about financial management	244	57.8
Need help to apply for benefits	302	72.5
Need advice on employment after stroke	306	72.5
Need help to take a bath and cut my nails	180	42.7
Need help with my bladder and bowel activities	142	33.6
Need advice about my physical relationship	208	49.3
Need help about concentration and mood	306	72.5
Need advice on how to occupy my day better	314	74.4
Need help with catering during holidays	223	52.8

5.3.1. Highly reported unmet needs

The top ten frequently reported unmet needs are summarized in the chart below. Nearly all (98.6%) of the study participants reported needing more information about their condition and on how to avoid another recurrence. Seeking advice on how to use public transportation is also another unmet need reported by 80.6% of the study respondents followed by needing advice on modifying their diet (79.04%).

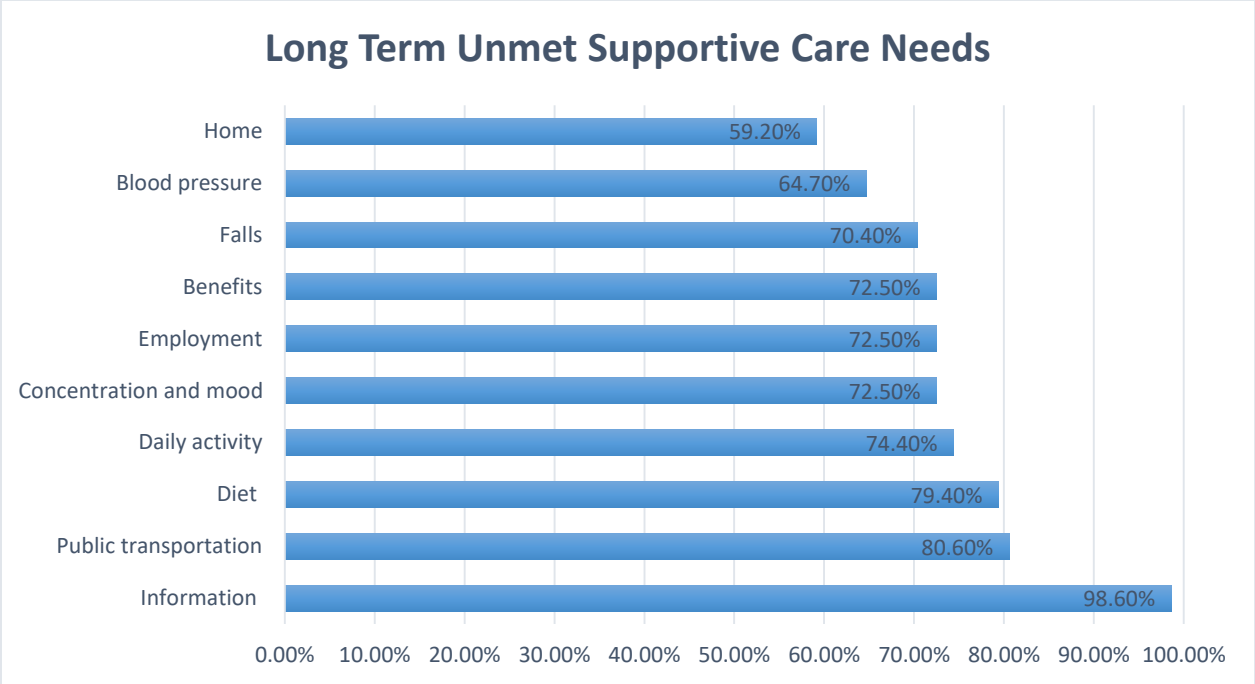


Figure 3: Top 10 highly reported unmet needs among stroke survivors in TASH and SPHMMC, 2020.

5.4. Bivariate and Multivariable analysis

The presence of association between sociodemographic characteristics and clinical characteristics with Long Term Unmet Supportive Care Needs first was analyzed by bivariate logistic regression. After examining the statistical significance of independent variables by using the bivariate logistic regression. Residence, educational status, occupation, time since last stroke attack, history of hypertension, history of DM, history of heart diseases and physiotherapy utilization were found to be statistically significant variables with ($p < 0.25$). Thus, these variables were further analyzed in multivariable logistic regression. The table below summarizes the findings of bivariate and multivariable logistic regression.

Table 4: Association between sociodemographic and clinical characteristics with long term unmet needs of stroke survivors, TASH and SPHMMC, 2020.

Variables	Having unmet needs Frequency N(%)	Un adjusted OR(95% CI)	Adjusted OR(95%CI)	P-value
Residence				
Urban	145(42.9)	2(1.2,3.2)	1.785(0.821, 3.884)	0.14
Rural	50(60.2)	1	1	
Educational status				
Illiterate	18(45)	1.011(1.1,5.2)	2.9393(0.635,9.019)	0.1
Can read and write	53(66.2)	2.425(1.9,11.02)	6.551(2.087,20.561)	0.001
Primary education	22(39.3)	0.799(0.71,3.45)	1.318(0.406, 4.286)	0.46
Secondary education	38(37.6)	0.745(0.93,5.2)	1.747(0.615,4.966)	0.29
Diploma and degree	48(44.9)	1.005((1.23,2.7))	0.594(0.238.1.484)	0.28
Masters and above	17(44.7)	1	1	
Occupation				
Housewife/unemployed	34(60.8)	1	1	
Student	3(25)	0.250(1.1,1.83)	7.970(2.166,29.329)	0.23
Farmer	32(54.2)	0.702(0.53,1.4)	1.374(0.389, 4.849)	0.22
Daily laborer	2(28.6)	0.321(0.89,1.01)	1.603(0.526,4.884)	0.45
Government employee	73(52.9)	0.343(0.43,2.1)	1.961(0.317,12.148)	0.322
Trader	18(34)	0.208(0.51,2.3)	4.307(1.080,17.173)	0.421
Private/NGO	34(35.4)	0.938(0.59,3)	7.373(2.231,24.365)	0.07
Time since stroke				
6 months	27(54)	1.63(1.2,1.9)	1.203(0.558,2.595)	0.34
6-12 months	58(54.2)	1.64(1.31,2.81)	2.004(1.121,3.581)	0.019
>12 months	110(41.8)	1	1	
History of HTN				
No	41(25.2)	1	1	

Yes	155(59.8)	4.4(2.8,4.5)	5.331(3.108,6.146)	0.001
History of DM				
No	134(43.5)	1	1	
Yes	62(54.4)	1.5(1.1,2.3)	1.104(0.635,1.921)	0.726
History of heart disease				
No	139(40.9)	1	1	
Yes	57(69.5)	3.2(1.96,4.5)	2.632(1.410, 4.913)	0.007
Physiotherapy utilization				
No	139(52.5)	1.9(1.29,2.9)	3.422(1.839,6.369)	0.002
Yes	57(36.3)	1	1	

Stroke survivors who can only read and write were more likely to report Long Term Unmet Supportive Care Needs than those who had advanced educational status with an AOR of 6.551 and a 95% CI of (2.087, 20.561). Stroke survivors who had their last stroke attack within 6- 12 months were also 2 times more likely to report long term unmet needs than those who had their last stroke attack before a year or more with AOR=2.004 and 95% CI (1.121, 3.581). Being hypertensive was also another variable which had significant association with Long Term Unmet Supportive Care Needs, by which hypertensive patients were 5 times more likely to report Long Term Unmet Supportive Care Needs than those who were not hypertensive with AOR= 5.331 and a 95% CI (3.108, 9.146). Stroke survivors who utilized physiotherapy were 3.4 times more likely to report unmet needs than those who don't use physiotherapy with AOR= 3.422 and a 95% CI (1.839,6.369). Stroke survivors with heart diseases were 2.6 times more likely to report long term unmet needs than those who doesn't have heart diseases with AOR=2.632 and a 95% CI of (1.410,4.913).

6. Discussion

This study aimed to assess the magnitude of the long term unmet supportive care needs among stroke survivors and its associated factors in Tikur Anbessa Specialized Hospital and Saint Paul's Hospital Millennium Medical College. We found that residence, educational status, occupational status, time since last stroke attack, history of hypertension, history of diabetes mellitus, history of heart diseases and physiotherapy utilization were found to be statistically significant factors for patients to experience higher Long Term Unmet Supportive Care Needs. The median age of the stroke survivors which were included in this study was 54.5 with interquartile range of 42.75 to 62.25 with males being the majority sex group. This is consistent with several hospital-based studies and reports by which stroke seems to be affecting the younger age groups within this decade(23).

Residency had a significant association with unmet supportive care needs on the binary logistic regression. Participants living in rural areas were 2 times more likely to report unmet supportive care needs than participants who live in urban areas. This might be caused by the lack of health infrastructure and distance from the rural area. The findings go in line with a study conducted in England by which participants living in less accessible areas to therapy reported more unmet needs (45).

Disability level was identified by using the Modified Rankin Scale and only 3.8% of the study participants had severe disability. This can be explained by those with severe disability may have died earlier, or are difficult to be brought to a hospital (need of a CONTRACT taxi which is expensive for an average Ethiopian, or stigma fear by families. The level of disability was significantly associated with number of unmet needs reported. This finding was consistent with a study conducted in Germany by which the level of disability of stroke survivors was significantly associated with unmet psychosocial supportive care needs(46).

Physiotherapy utilization was reported by 37.2 % of the participants in this study. Similarly, a study which was conducted in West Africa stated that the physiotherapy utilization of stroke survivors is low (16). In this study, not being able to afford the services provided, long distance from home to the physiotherapy utilization centers, transportation related issues and unsatisfactory services were identified as reasons for not using physiotherapy. This goes in line with the report

from the world confederation of physiotherapists were service demand or waiting list and economic considerations are identified as barriers to physiotherapy utilization (35).

The prevalence of unmet supportive care needs in the current study ranged from 26.1%(Driving needs) to 98.6%(Information needs). All of the study respondents reported at least one unmet supportive care need from the 22 questions included in the LUNS tool. Likewise, in a study conducted in Europe, two hundred eighty-four respondents (54%) reported wanting more information about the cause of their stroke and prevention of recurrence. There were no significant differences in reporting unmet needs by sex in our study. Similarly, a study conducted in Germany stated that social support needs were almost equally reported among both sexes (34). Another study conducted in Europe reported that Income was significantly associated with reporting Unmet needs. It stated that stroke survivors with low socioeconomic characteristics reported more long term unmet needs than those with high socioeconomic characteristics. On the contrary, we didn't find any significant association between income and reporting long term unmet needs above the mean value(30).

History of hypertension was reported by 61 % of stroke survivors. Two hundred seventy-three of the respondents in this study reported that they need blood pressure checkups more frequently. Similarly, another study conducted in Addis Ababa Ethiopia mentioned that hypertension occurred in 65% of the total study participants irrespective of their stroke type. In this study, Eighty-five percent of the participants had ischemic stroke while only 14.7% had hemorrhagic stroke types. On the contrary, the frequency of hemorrhagic stroke had been reported to be higher in Sub Saharan African countries. This discrepancy might be the result of the increased mortality in hemorrhagic stroke type. In addition, a hospital based study conducted in Ethiopia stated that the in hospital mortality of hemorrhagic stroke types is higher than ischemic ones. So patients might not make it until their long term checkups (6 months) (1).

In addition to Hypertension, clinical factors like Cardiac diseases and Diabetes mellitus also contributed to reporting more long term unmet supportive care needs. On the other hand, a study conducted in Tikur Anbessa specialized Hospital in Addis Ababa stated that the frequency of diabetes in stroke patients was low. This discrepancy could be clarified by their limited sample size and single hospital-based design of the study(23). But in another INTERSTROKE study, it was stated that diabetes was prevalent among 21% of patients with ischemic stroke which goes in line with our study(4). Cardiac diseases are mentioned as important risk factors for ischemic stroke

in different literatures. In this study, history of heart disease was significantly associated with reporting long term unmet supportive care needs after controlling for other variables. These findings go in line with a study conducted in Europe by which patients who had comorbidities reported more unmet needs than the others(47).

More than half of the study respondents (54%) reported needs related to pain management (they have constant pain and nothing seems to ease it). On the other hand, a study conducted in England stated that only 39.5% stroke survivors reported unmet needs regarding pain. This difference might be as a result of the medical and rehabilitation system differences of the two countries. Worsening of movement disorders and seeking help to improve these were reported by 43% of the study respondents(27).

Another unmet need which was reported by most of the study participants (70.4%) in this study, was being afraid of falling again and the fear is preventing them to do previous activities they were used to function. In addition to this, needing help to improve concentration and memory were reported by 72.5% of the total study respondents. This should be analyzed carefully as most patients might need psychosocial support in addition to physiotherapy to heal physically and mentally to move on with their activities without fear over time. Needing advice on getting back to driving was one of the least reported unmet needs (26.1) while seeking information on how to use public transportation again was one of the highly reported unmet needs (80.6%). Similar findings were reported in Europe regarding transport and travel concerns(42).

Adaptations or aids are directly linked with physical disabilities, need for additional aids like kitchen equipment) or adaptations like stair lift, grab rails inside the home are reported by 53.1% of the study respondents in this study, whereas adaptations outside the home such as ramp, rail or wheelchair were reported by half of the respondents (50.2%). This is critical to stroke survivors as they suffer with the long term physical disabilities of the diseases. On the other hand, a study conducted in Australia mentioned that mobility aids and home adaptations were provided for 54% and 31% of the patients respectively after discharge from hospital and this facilitated their ability to adapt to ongoing physical disabilities following their stroke. Mobility aids comprised wheelchairs, scooters, walking sticks and frames, which allowed physical functioning as well as independence(46).

Intimacy problems is mentioned as one of the most commonly reported emotional problems after stroke according to the American stroke association. In addition, in a study conducted in Europe,

feelings of guilt were reported for some respondents who were worried that they were not as emotionally presented to their loved ones as they were before the Stroke. In our study, we found that sexuality needs were reported by almost half (49.3%) of the participants. This figure was unexpectedly high and should be understood with attention because talking about sex is a taboo or embarrassing in the culture of our setup so patients might not be honest about sexual relationship questions. Moreover, this might eventually make patients distinguish that sexuality is of little significance in spite of having certain sexual problems(48)(27).

In our study stroke recurrence was reported by many stroke survivors who participated in this study. This showed a discrepancy with a study conducted in Europe by which stroke recurrence was reported by only 14% of the study participants. This difference can be explained by our hospital based study and their study being a population based survey. Since it's a hospital based study more complications or recurrences might be reported than that of a population based study(49). On the other hand, our finding goes in line with a study conducted in united states of America, by which recurrent strokes make up almost 25% of the closely 800,000 strokes that happen yearly in the USA. The study reported that around half of patients who survive an ischemic stroke or TIA are at increased risk of recurrent stroke. In addition, recurrent events lead to prolonged hospitalization and worsened functional outcome in the long term(50).

Another important variable which has a significant association with long term unmet supportive care needs above the mean value is time since stroke attack, with a decrease in frequency of unmet supportive care needs as time progresses from their last stroke attack. This was consistent with a study conducted in Singapore on factors related to met needs for rehabilitation 6 years after post stroke which stated that unmet needs after stroke seem to be relatively stable over time(51).

The current COVID 19 pandemic might have affected the findings of the study as most patients who had appointment during this study period were not present and as a result this compromised the intended sampling procedure. In addition, patients who were available despite the pandemic might have serious concerns about their stroke which could affect the result.

7. Strength and Limitation of the study

7.1. Strength

- The analysis of previous studies on Unmet Supportive Care Needs of Stroke Survivors was only descriptive but this study incorporated descriptive and advanced analysis
- Permission was obtained from Anne Forster on behalf of Bradford Teaching Hospitals NHS Foundation to use the Long Term Unmet Needs Questionnaire Tool

7.2. Limitations

- The study was conducted in two hospitals in Addis Ababa, so the findings can't be generalized to all residents in Addis Ababa as well as other regions of the country.
- Due to the current COVID 19 pandemic, qualitative data was not collected to minimize risk for both the data collectors and the patients.
- Due to the current COVID 19 pandemic, the patient flow was lower than anticipated so all eligible patients who were available during the study period were included in the study to attain the desired sample size (sampling procedure).

8. Conclusion

In our study, long term unmet supportive care needs were identified as problems to stroke survivors being reported in varying frequency. Information needs about stroke and how to avoid another one were the most frequently reported unmet needs. This study also revealed other factors associated with long term unmet supportive care needs and highlighted the importance of considering sociodemographic and clinical characteristics such as rural residence, lower educational level, time since last stroke attack, the presence of comorbidities like hypertension as well as heart diseases and physiotherapy utilization when working with stroke survivors on the health care settings as these factors may help identify individuals who are more likely to experience unmet supportive care needs.

9. Recommendation

Health care provider's/health facilities:

- Health care providers should provide information about the patients' condition and how to avoid recurrence, how to make dietary modifications and routine assessment of unmet needs should be done along with medical care to address unmet needs whenever encountered by patients as needs are subjective to each patient.
- Appropriate physical rehabilitation programs in healthcare setting should be provided with adequate intensity and quality for stroke survivors as unsatisfactory services in the physiotherapy centers were identified by most participants as a reason not to utilize physiotherapy in this study.
- Health facilities should establish a psychosocial support service and group therapy sessions for stroke survivors to help them cope with their disabilities, fears and future uncertainties as most patients reported fears of falling again, problems with mood and concentration.

Researchers:

- It would be good if future studies are done using a qualitative study on the unmet supportive care needs to assess the needs in this country's context and further community based studies are recommended to assess the needs on a broader aspect.
- The study should also be done on other regions of the country to identify the needs in different contexts.

Governmental and non-governmental bodies/policy makers:

- The findings from this study indicated that programs, guidelines and services should be established and/or implemented to address the supportive care needs of these vulnerable groups like public transportation usage for survivors with physical disabilities, special benefits or employment opportunities for those in need should be arranged in a way that would be suitable for stroke survivors.

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Annex

Annex 1

1.1. Study information sheet

Addis Ababa University College of Health Science School of Public Health

Title of the study- Unmet supportive care need of stroke survivors in TASH and SPHMMC, Addis Ababa, Ethiopia.

My name is _____. I am part of a team for a master's thesis project in Addis Ababa University. We are conducting a research about the long term unmet supportive care needs of stroke survivors in two specialized hospitals (TASH and SPHMMC) in Addis Ababa which. Cardiovascular diseases are the major cause of death globally. Despite the efforts made by the federal ministry of health to decrease the burden of NCDs by controlling hypertension, less attention is given for those patients who have survived stroke. Therefore, this study aims to determine the unmet supportive care needs of stroke survivors. The findings from this study will help to find out the unmet needs of stroke survivors which will contribute to the recovery process and address the policy implications. I may ask you about your disease and recovery process which, maybe personal information but by participating in this study you will indirectly contribute to the betterment of the life of stroke survivors. You are selected randomly by chance and we kindly incite you to participate in this study. If you agree to participate in the study, you will be asked to answer some questions about this research related questions and yourself. The interview will take 15-30 minutes.

Benefit- The findings from this study will help to find out the unmet needs of stroke survivors and address the policy implications to support the area. This will help health professionals to assess the unmet needs and to address the identified gaps.

Risk- I may ask you about your disease which may be personal information but by participating in this study, you will indirectly contribute to the betterment of the life of stroke survivors.

Any information learned from this study which might identify you will be kept confidential. Participating in this study is based on your voluntary willingness and you can withdraw at any time. The information that you provide will be kept confidential. The data will not be used for purposes other than this study.

1.2. Consent form

I confirm that it is with a clear understanding of the objectives and conditions of the study that I give my consent to participate in the study. I have been given the necessary information about the research. I have understood that it is my right to withdraw from the study at any time. The proposal has been explained to me in the language I understand.

Are you willing to participate in this study?

Yes _____ No _____

Name of the patient/care giver _____

Signature _____

Annex 2- Questionnaire (English version)

Identification			
Patient registration card number	<input type="text"/>	<input type="text"/>	<input type="text"/>
Disease code	<input type="text"/>	<input type="text"/>	<input type="text"/>
Date of data collection	<input type="text"/>	<input type="text"/>	<input type="text"/>
Section I: socio demographic characteristics			
Instructions: the following questions are about socio demographic characteristics of the study participant please circle on the numbers under the coding categories or record on the space provided according to the participants response			
NO.	Questions and filters	Coding categories	Skip
101	Gender	1. Male 2. Female	
102	How old are you?(complete years)	<input type="text"/>	
103	Where is your Residence?	1. Urban 2. Rural	
104	What is the name of the region you came from?	1. Addis Ababa 2. Harari 3. Gamebela 4. Dire Dawa 5. Benishangul-Gumuz 6. Somali 7. Affar 8. Tigray 9. Oromiya 10. Amhara 11.SNNPR	
105	What is your current marital status?	1. Never married 2. Married 3. Living together 4. Divorced/separated 5. Widowed	
106	What is your religion?	1. Orthodox 2. Protestant 3. Catholic 4. Muslim 5. Traditional 5. Other----- (specify)	

107	What is your educational status	1. Illiterate 2. Can read and write 3. Primary 4. Secondary 5. Diploma and Degree 6. Masters and Above			
108	What is your occupation?	1. Farmer 2. Daily laborer 3. Governmental employee 4. Trader 5. NGO/Private job 6. student 7. unemployed/house wife 8. others-----			
109	What is your partner's educational status?(for those only with partner)	1. No education 2. Can read and write 3. Primary 4. Secondary 5. Diploma and Degree 6. Masters and Above			
111	What is your monthly total HH income?	-----ETH birr			
113	What is the size of your family? (per household(HHS))	<table border="1" data-bbox="857 1587 1016 1650"> <tr> <td style="width: 30px; height: 30px;"></td> <td style="width: 30px; height: 30px;"></td> </tr> </table>			

Section II. Unmet supportive care need Patient profile	Yes	No
1. I would like more information about my stroke (e.g. what is a stroke, why it has happened to me and how to avoid having another one)		
2. I haven't had my medication/blood pressure checked for some time and would like a check up		
3. I regularly get pain and nothing seems to ease it		
4. My walking and general moving seems to be getting worse and I'm not getting any help with this		
5. I am worried that I might fall (again) and this is stopping me from doing my usual things		
6. I need additional aids (e.g. kitchen equipment) or adaptations (e.g. stair lift, grab rails) inside the home		
7. I need adaptations outside the home (e.g. ramp, rail) but they haven't been ordered yet or I've been waiting too long		
8. I need some help / advice about getting back to driving and / or getting a blue badge		
9. I would like to find out about traveling on buses, taxis or trains		

10. I would like outside help to get jobs done in my home (e.g. cleaning, cooking, ironing, fixing things)		
11. I would like to look into the options for moving to another home		
12. I would like some advice about how to improve my diet (e.g. alcohol, sugar, fat and salt intakes)		
13. I need some advice to help me manage my money better (e.g. paying bills, getting my pension)		
14. I would like help to find out about, or to apply for benefits		
15. I would like advice on employment after stroke		
16. I need more help with things like cutting my toenails, washing myself or dental care (including dentures)		
17. I have problems with my bladder / bowel (accidents, constipation, diarrhea) and would like some help with this		
18. I am concerned about my physical relationship with my partner and would like some advice or information		
19. I forget things quite a lot or find it hard to concentrate and would like some help with this		

20. I often feel quite low, angry or worried and would like to find out what help is available		
21. I would like to occupy my day better (e.g. social outings, home library, hobbies) but don't know how to go about it		
22. I would like to find out about holidays / breaks (including transport) that cater for people with disabilities		

Section III: Clinical characteristics of the participants			
Instructions: This part of the questioner should be taken from the patient card and filled			
NO.	Questions and filters	Coding categories	Skip
	Stroke type	1. Ischemic 2. Intracerebral 3. Subarachnoid	
	Time since stroke attack	1. 6 months 2. 6 months- 1 year 3. > 1 year	
	History of recurrence?	1. Yes 2. .No	
	History of hypertension	1. Yes 2. No	
	History of diabetes mellitus	1. Yes 2. No	
	History of heart diseases	1. Yes 2. No	
	Measure of Disability level of the patient(The modified Rankin scale)		
	Description		Score

1	No symptoms at all(fully independent)	0
2	No significant disability despite symptoms; able to carry out all usual duties and activities	1
3	Slight disability; unable to carry out all previous activities, but able to look after own affairs without assistance	2
4	Moderate disability; requiring some help, but able to walk without assistance	3
5	Moderately severe disability; unable to walk without assistance and unable to attend to own bodily needs without assistance	4
6	Severe disability; bedridden, incontinent and requiring constant nursing care and attention	5
7	Dead	6
Physiotherapy		
	Physiotherapy service utilization	1. Yes 2. No
	If yes, how many times per week for how long?	
	If no, why?	1. Economic reasons 2. Transportation/ distance 3. Dissatisfaction with the service

Annex 3

3.1. Information sheet Amharic version

መረጃ መግለጫ

እንደምን አደሩ/ዋሉ _____ እባላለሁ። በአዲስ አበባ ዩኒቨርሲቲ በሕብረተሰብ ጤና ትምህርት ለድህረ ምረቃ ፕሮግራም ተማሪ መረጃ ሰብሳቢ ስሆን የምርምር ጥናቱ ስለ ህሙማን በረጅም ጊዜ ያልተሟላላቸው የእገዛ እና እንክብካቤ ፍላጎቶች ምን እንደሆኑ ለማወቅ የስትሮክ(ነርቭ) ህክምና የሚከታተሉ አዋቂ ታካሚዎች ላይ የሚደረግ ጥናት የሚያጠና ሲሆን የሚሰበሰበው መረጃ ጠቃሚነቱ ለእርስዎ ፣ለምንግስት አካላትና ለሌሎች ታማሚዎች የእንክብካቤ ፍላጎትን ለማሟላት የተሻለ እቅድ እንዲታወቅና ትኩረት እዲሰጥ ፤ እርስዎ ለዚህ ጥናት በ እድል የተመረጡ ነዎት። የጥናቱ ቅደም ተከተል፣ የጥናቱ ጠቀሜታ፤ እንዲሁም ከእርስዎ የሚጠበቀውን እንደሚከተለው ይገለጻል።

የጥናቱ ዋና አላማ ፡ የ ስትሮክ(ነርቭ) ህሙማን በረጅም ጊዜ ያልተሟላላቸው የእገዛ እና እንክብካቤ ፍላጎቶች ምን እንደሆኑ ለማወቅ አዋቂ ታካሚዎች ላይ የሚደረግ ጥናት

የጥናቱ ቅደም ተከተል፡ ይህ ጥናት እርስዎ የፈቃደኝነት ፊርማዎትን ካስቀመጡ በኋላ በፊትለፊት በሚደረግ ቃለ-መጠይቅ ለ 15 -30 ደቂቃ የሚካሄድ ሲሆን እኔ አንዳንድ ጥያቄዎች እጠይቅዎታለሁ የሚመልሱት መልስም በቅፁ ላይ በፅሁፍ የሚቀመጥ ይሆናል። የጥናቱ ጠቀሜታ፡ በዚህ ጥናት ላይ በመሳተፍዎ ምንም አይነት የሚሰጥ ገንዘብ የለም። ነገር ግን በዚህ ጥናት ላይ ሲሳተፉ የአጭር እና የረጅም ጊዜ ጠቀሜታ ያገኛሉ። ከአጭር ጊዜ ጠቀሜታዎቹ መካከል ስለ ህመምዎት በሰፊው መሰረታዊ በሆኑት እና ባልተሟሉልዎት ፍላጎቶች ላይ በጥያቄው መሰረት ከ መረጃ ሰብሳቢው ጋር ይወያያሉ ፤ በዚህ ወቅት ከፍተኛ ያልተሞላ ፍላጎት ያለው የጤና እርዳታ የሚያስፈልገው ሰው ጥያቄው ሲያበቃ ጉዳዩ ከሚመለከተው ባለሙያ ጋር መረጃ ሰብሳቢው እንደ ሁኔታው ክብደት ታይቶ ያገናኛል። ሲያበቃ እርስዎ እና ሌሎች ተሳታፊዎችን የሰጡትን መልስ እንደ መነሻ መረጃ በመጠቀም በአብዛኛው ለማይሟሉ ፍላጎቶች ጥሩ የሆነ የጤና አገልግሎት ላይ ለመስራት እንዲሁም አዳዲስ አቅዶችን በመቅረፅ እና በመተግበር ለሕብረተሰቡ እና እንደ እርስዎ በህመሙ ለተያዙ የእንክብካቤ ድጋፍ ለማድረግ እንደመረጃነት ይሆናል፤ ይህ የረጅም ጊዜ የጥናቱ ጠቀሜታዎች ናቸው።

የጥናቱ ጉዳዮች፡ የሰአትዎን በአማካኝ 15-30 ደቂቃ በጥናቱ ላይ ያሳልፋሉ። እንዲሁም ስለህመምዎ በሚወያዩበት ሰአት ምናልባት የመረጃ ስሜት ሊኖርዎት ይችላል።

የተሳታፊዎች መብት፡ በጥናቱ ላይ የመሳተፍዎ ሆነ ያለመሳተፍ ሙሉ መብት አልዎት፤ ጥናቱ ውስጥ ተሳታፊ ሆነው ቢሆን እንኳን አቋርጦ መውጣት ይችላሉ ፤ ሁሉንም ጥያቄዎች መመለስ አሊያም አለመመለስ ይችላሉ ። ያልገባዎትን ማንኛውንም ጥያቄ መጠየቅ ይችላሉ።

ሚስጥር ጠባቂነት በመረጃ አሰባሰብ እና ትንተና ወቅት፡ ከዝህ ጥናት የሚሰበሰበው መረጃ በጥናቱ አጥኝ የሚያዝ ሲሆን መረጃውም በ ሚስጥር ቁጥር የሚዘጋ ይሆናል። የግለሰቦች መግለጫ (ስም) አይመዘገብም በተመሳሳይ ጥናቱ ባለቀ ወቅትም የግለሰቦች ማንነት(ስም) በሪፖርት ላይ ማይገለጽና ማጠቃለያ ጽሁፉም በሚስጥር ቁጥር የሚዘጋ ይሆናል። መረጃ ክፍፍል፡ በጥናቱ ወቅት የተሰበሰበው መረጃ የጥናቱ ባለቤት ብቻ ይኖርዋል። ይህ የፈቃደኝነት መግለጫውንም ያካትታል። በጥናቱ ለመሳተፍ ፈቃደኛ ነዎት ? 1- አዎ (በመረጃ ላይ የተደገፈ የፍቃደኝነት ቅጽ ይውሰዱ)

3.2 Informed consent form Amharic version

በተሰጠ መረጃ ላይ የተመሰረተ ፍቃደኛነት ቅጽ ለህመምተኛው

የዚህ ጥናት አላማ ፣ ጥቅም ፣ ጉዳት ፣ ቅደም ተከተል ፣ ሚስጥራዊነት በሚገባኝ ቋንቋ ተነበልኝ ተገልጿል ፤ እንዲሁም በዚህ ጥናት ውስጥ መቀጠልም ሆነ በማንኛውም ሰዓት ማቋረጥ እንደምችል ተነግሮኛል ። በዚህ ጥናት ለመሳተፍ ፈቃደኛ ነኝ።

የተሳታፊው ወይም የጠባቂው ፡ ፊርማ/ እጅ አውራ ጣት አሻራ _____ ቀን _____

የጠያቂው ሙሉ ስም

የጠያቂው ፊርማ _____

የመጠይቁ ዉጤት ማረጋገጫ (በጥናቱ ተቆጣጣሪ ባለሙያ መረጋገጥ አለበት)

ሙሉ በሙሉ የተሞላ

በክፊል የተሞላ

የተቆጣጣሪ ስም _____ ፊርማ _____ ቀን _____

Annex 4- Questionnaire (Amharic version)

የታካሚ ካርድ ቁጥር የበሽታ መለያ ቁጥር መረጃ የተሰበሰበበት ቀን	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25%; height: 20px;"></td> <td style="width: 25%; height: 20px;"></td> <td style="width: 25%; height: 20px;"></td> <td style="width: 25%; height: 20px;"></td> </tr> <tr> <td style="width: 25%; height: 20px;"></td> <td style="width: 25%; height: 20px;"></td> <td colspan="2" style="width: 50%; height: 20px;"></td> </tr> <tr> <td style="width: 25%; height: 20px;"></td> <td style="width: 25%; height: 20px;"></td> <td style="width: 25%; height: 20px;"></td> <td style="width: 25%; height: 20px;"></td> </tr> </table>												
ክፍል አንድ: የታማሚ የኢኮኖሚ እና የማህበራዊ ሁኔታን የተመለከቱ ከዚህ በታች ያሉት ጥያቄዎች ስለ ታማሚው ማንነት አንዳንድ ነገሮችን ይጠይቃል። በመለያ ስር ያለውን ቁጥር የጥናቱ ተሳታፊ ምላሽ ሲሰጥ ይከብብ። እንዲሁም ክፍት በተተዉት ቦታዎች የታማሚውን ቀጥታ መልስ ይመዝገብ።													
ተራቁ	ጥያቄዎች	ምላሽና የኮድ መደብ	ይዘለሉት										
101	የታ	3. ወንድ 4. ሴት											
102	የእርስዎ እድሜ ስንት ነው?(በሙሉ አመት ይቀመጥ)	<table border="1" style="width: 40px; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 20px;"></td> <td style="width: 20px;"></td> </tr> </table>											
103	የመኖሪያ ቦታ የት ነው?	3. ከተማ 4. ገጠር											
104	ከየት ክልል ነው የመጡት?	11. አዲስ አበባ 12. ሀረር 13. ጋምቤላ 14. ድሬድዎ 15. ቤንሻል ጉምዝ 16. ሶማሊያ 17. አፋር 18. ትግራይ 19. ኦሮሚያ 20. አማራ 21. ደቡብ											
105	አሁን ያለዎት የጋብቻ ሁኔታ ምንድነው?	6. ያለገባ/ች 7. ያገባ/ች 8. አብሮ የሚኖር 9. የተፈታ/ች/ የተለያየ/ች 10. የሞተበት/ባት											

106	የእርስዎ ሃይማኖት ምንድነው?	6. ኦርቶዶክስ 7. ሙስሊም 8. ፕሮቴስታንት 9. ካቶሊክ 10. ሌሎች-----	
107	የእርስዎ የትምህርት ደረጃ ምንድነው?	1.ያልተማረ/ች 2.ማንበብና መጻፍ የሚችል 3.የመጀመሪያ ደረጃ 4.ሁለተኛ ደረጃ 5. ዲፕሎማና ዲግሪ 6. ማስተርስና ከዛ በላይ	
108	በአሁኑ ሰዓት መደበኛ ስራዎ ምንድነው?	1. አርሶ አደር 2. የቀን ሰራተኛ 3. የመንግስት 4. ነጋዴ 4 የግል ስራ/የመንግስት ያልሆነ ድርጅት 6 ተማሪ 7 የቤት እመቤት/ስራ የሌለው 8 .ሌሎች-----	
109	የባለቤትዎ የትምህርት ደረጃ ምን ያህል ነው?(በትዳር ላይ ላሉት ብቻ)	1.ያልተማረ/ች 2.ማንበብና መጻፍ የሚችል 3.የመጀመሪያ ደረጃ 4.ሁለተኛ ደረጃ 5. ዲፕሎማና ዲግሪ 6. ማስተርስና ከዛ በላይ	
111	በወር የእርስዎ የገቢ መጠን ስንት ነው?	-----በኢትዮጵያ ብር	
113	የቤተሰብ ብዛት በአንድ ቤት ውስጥ ስንት ነው		

ክፍል ሁለት በረጅም ጊዜ ያልተሟሉ የእገዛ እና እንክብካቤ ፍላጎቶች	የምላሽ አና የኮድ ምድብ (አዎ) 1	የምላሽ አና የኮድ ምድብ (አይ) 0
<p>1. ስለተከሰተው (ስትሮክ/ የነርቭ በሽታ) ተጨማሪ ማብራሪያ ከሃኪሞች እንዲሰጠኝ እፈልጋለሁ። ለምሳሌ እኔ ላይ የተፈጠረው ስትሮክ (የነርቭ በሽታ) እንዲህ ነው ተብሎ ዝርዝር ተደርጎ /ተብራረቶ/ ቢነገረኝ ፣ ይህ ህመም እኔ ላይ ለምን ሊከሰት ቻለ፣ ሌላም ግዜ እንዳይደገም ምን ማድረግ እንዳለብኝ... ማብራሪያ ቢሰጠኝ (ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>2. የደም ግፊቴን ከተለካሁ እንዲሁም መድሃኒት ክትትል ካረኩ ቆይቻለሁ እናም መታየት እፈልጋለሁ። (ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>3. ብዙ ጊዜ ህመም ቢሰማኝም ህመሜን የሚያስታግስልኝ ምንም ነገር አላገኘሁም፣ (ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>4. አረማመዴ እንዲሁም መላ እንቅስቃሴ እየባሰ ቢሆንም ምንም አይነት መፍትሄ አላገኘሁም። (ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>5. እንደው እወድቅ ይሆን (ድጋሚ) ብዬ እየፈራሁ ተንቀሳቅሼ አንዳንድ (የተለመዱ ነገሮችን) ለማድረግም ይዘኛል /ገድባኛል (ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>6. በቤት ውስጥ (ለመዘዋወር) አንዳንድ ነገር እንዲኖረኝ ያስፈልጋል (ለምሳሌ) ከአልጋ ወደ ሽንት ቤት ስሄድ በእጄ ይዜ ተደግፌ የምሄድበት እንደ ደረጃ ላይ ያለ የጠርዝ መደገፊያ ብረት (ቤቱ ደረጃ ያለው ወይም ፎቅ ቤት ለሆነ) ወደላይ ለመውጣት ሊፍት /አሳንሰር/ ፣ቢኖር፤ምግብም ለማብሰል (አሁን ካለው በተሻለ) የሚመች ማንደጃ /መቀመጫ/ መክተፊያ...ቢኖረኝ (ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>7. ከቤት ውጪም በረንዳና፣ ግቢ ውስጥ ለመንቀሳቀስ በእጄ እየያዝኩት /እየተደገፍኩት/የምዘዋወርበት እንደ ድጋፍ ነገር</p>		

<p>ስፋልኝ ብዬ ነበር / ቢኖረኝ ኖሮ ጥሩ ነው (ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>8. (መኪና እየነዳ ለነበረ/ች)እንደገና መንዳት ለመጀመር ምክር ወይም እርዳታ እፈልጋለሁ።</p>		
<p>9. ከዚህ በኋላ በትራንስፖርት (አውቶብስ፣ ታክሲና ባቡር) መጠቀም እችላለሁ ወይ የሚለውን ማወቅ እፈልጋለሁ (ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>10. በቤቴ ውስጥ ያለውን ስራ ለመስራት (ለማጥዳት፣ ምግብ ለመስራት፣ ልብስ ለመተኮስ፣ ለማስተካከል)የሰው እገዛ ያስፈልገኛል(ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>11. አሁን ላለሁበት ሁኔታ ፣ አሁን የምኖርበትን ቤት ትቼ ሌላ የሚመች ቤት ባገኝ /ብቀይር/ብለው ያስባሉ/ ያቅዳሉ ?</p>		
<p>12. አመጋገቤን ለማሻሻል ምክር እፈልጋለሁ። (ለምሳሌ መጠጥ፣ ስኬር፣ ጫማ እና ጨው)</p>		
<p>13. አንዳንድ ቦታ ገንዘብ ለመክፈልና እንደጡረታ ያሉ ገንዘብ ለመቀበል ምክር /እገዛ ያስፈልገኛል (ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>14. እንደው አሁን ላለሁበት ሁኔታ እርዳታ እገዛ የሚያረግገኝ ተቋም፣ ድርጅት ካለ ባውቅ፣ የሚነግረኝ ቢኖር (ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>15. ከተሻለኝ በኋላ ስራ ለመቀጠር (ስራ ሰርቶ ገቢ ለማግኘት) የሚያስፈልግ ምክር እፈልጋለሁ(ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>16. ጥፍሬን ለመቁረጥ፣ ገላዬን ለመታጠብ እንዲሁም ጥርሴን ለማጥዳት ተጨማሪ እርዳታ ያስፈልገኛል(ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>17. ከ ፊኛ እና ከ ሰገራ ጋር በተያያዘ (ሽንት አለመቆጣጠር፣ ድርቅት፣ ተቅማጥ) ችግር ስለሚያጋጥመኝ እርዳታ እፈልጋለሁ (ይላሉ / ትያለሽ / ትላለህ)</p>		

<p>18. ከባለቤቱ (ዳደሩ) ጋር ያለኝ አካላዊ /ፆታዊ/ ግንኙነት ያሳስበኛል እና ይህን በተመለከተ ምክር መረጃ ቢሰጠኝ ደስ ይለኛል (ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>19. ደጋግሜ እዘነጋለሁ ፣ ነገር እረሳለሁ፣ ሃሳቤን ሰብሰብ አርጌ ነገሮችን ለማሰብ ለማንሰላሰል እቸገራለሁ፣ ትኩረቴ ቀንሷልና ለነዚህ ችግሮች መፍትሄ እገዛ ያስፈልገኛል (ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>20. ብዙ ጊዜ ደስተኛ አይደለሁም፣ ቶሎ እበሳጫለሁ እቆጣለሁ፣ እንዲሁም እጨነቃለሁና ለዚህም ህክምና / እገዛ ቢኖር (ይላሉ / ትያለሽ / ትላለህ)</p>		
<p>21. ቀኑን እንዴት አድርጌ ነው በጥሩ ሁኔታ የማሳልፈው ብዬ አስብና ያን ግን እንዴት ነው የማረገው የምለው ነገር ግራ ያጋባኛል (ለምሳሌ ዳደሮቼ ጋር፣ ቤተክርስቲያን ፣ መስኪድ ዞር ዞር ማለት / walk ማድረግ</p>		
<p>22. በእረፍት ቀናት እንዲሁም በበአላት ለአካል ጉዳተኞች የመስተንግዶ እና የትራንስፖርት አገልግሎት ስለሚሰጡ አካላት መረጃ እፈልጋለሁ።</p>		

<p>ፊዚዮቴራፒ</p>		
	<p>ፊዚዮቴራፒ ይጠቀማሉ?</p>	<p>1 አዎ 2 አልጠቀምም</p>
	<p>የሚጠቀሙ ከሆነ በሳምንት ስንት ቀን ? ለስንት ሰዓት</p>	
	<p>የሚይጠቀሙ ከሆነ ለምን?</p>	<p>1 በገንዘብ ምክንያት 2 በርቀት እንዲሁም ትራንስፖርት እጦት 3 በሚሰጠው አገልግሎት አለመርካት</p>

Annex 5 Assurance of principal investigator

ASSURANCE OF PRINCIPAL INVESTIGATOR

I, the undersigned MPH student declare that this thesis is my original work in fulfillment of requirement for the master of public health in Epidemiology and Biostatistics.

Name of the student: Edna Gebremichael

Date. ____17/08/2020_____

Signature_____

Approval of the primary Advisor

This thesis work has been submitted with our approval as the university advisor.

Name of the primary advisor: Muluken Gizaw (MPH, PhD candidate)



Date. __17/08/2020_____ Signature _____