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ASSESSMENT OF STROKE RISK AMONG PATIENTS

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Abstract - A descriptive study was done to assess the stroke risk among patients attending OPDs of the selected hospital, Pathanamthitta District with a view to prepare an information booklet. The objectives of the study were to assess the stroke risk among patients attending OPDs of the selected hospital and to find out the association between stroke risk and selected baseline variables of patients. Descriptive research design was used for the present study. Health promotion model by Nola. J. Pender was used as the conceptual framework for the study. The main study was done among 320 patients. The samples were selected using convenience sampling technique. Baseline data assessment proforma and Stroke risk score card were used as the tools for data collection. Descriptive and inferential statistics were used for data analysis. The study identified 88.8% of the patients belong to the category of caution and 5.6% of the patients belong to high and low risk categories respectively. Baseline variables like age and occupation were statistically associated with stroke risk scores. The study concluded that majority of the samples were belongs to the category caution. This shows patients have a greater risk for developing stroke and prompt monitoring is required. Stroke risk score card is a reliable tool for assessing the risk of stroke among patients.

Key words: stroke ; risk assessment; stroke risk score card

INTRODUCTION

Background of the problem

Human nervous system is a highly specialized system responsible for the control and integration of body's activities. Whenever there is an inadequate blood flow to the part of the brain or haemorrhage it causes the death of brain cells resulting in stroke, thus leading to serious long term disability such as impairment of movement, sensation and emotions.[1] It is also known as Cerebrovascular accident.

Stroke is a widespread neurological condition experienced worldwide. It is the third leading cause of death and is the destructive endpoint of cerebrovascular disease in many surviving patients [2]. According to the World Health Organisation, around 15 million people around the world suffer from strokes every year. Five million of them die and another five million are permanently disabled[3]. Stroke is a medical emergency and can cause permanent neurological damage and complications.[4] It is a leading cause of adult disability too. Every year, more than 795,000 people in the United States have a stroke. About 610,000 of these are first or new strokes.[5]

According to the Indian Stroke Association (ISA), 17 million people suffer a stroke each year, out of which 6 million die and five million remain permanently disabled. Due to inadequate preventive and stroke management facilities, approximately eight percent deaths occur due to stroke in middle and low-income countries like India.[6]

There are three main types of stroke: transient ischemic attack, ischemic stroke, and haemorrhagic stroke. It is estimated that 87% of strokes are ischemic. A transient ischemic attack is a warning or mini stroke. Anything that temporarily blocks blood flow to the brain causes a transient ischemic attack. The blood clot and transient ischemic attack symptoms lastfor a short period of time.An ischemic stroke occurs when blood clots or other particles block the blood vessels to the brain. Fatty deposits called plaque can also cause blockages by building up in the blood vessels. The concept is similar to that of a heart attack, where a blood clot blocks blood flow to a portion of the heart.[8]

An ischemic stroke can be embolic, meaning the blood clot travels from another part of the body to the brain. An estimated 15 % of embolic strokes are due to a condition called atrial fibrillation, where heart beats irregularly. A haemorrhagic stroke results when a blood vessel in the brain ruptures or breaks, spilling blood into

the surrounding tissues. High blood pressure and aneurysms, they are balloon-like bulges in an artery that can stretch and burst are examples of conditions that can cause a hemorrhagic stroke.[9]

Stroke is a heterogeneous syndrome, and determining risk factors and treatment depends on the specific pathogenesis of stroke. Risk factors for stroke can be categorized as modifiable and non modifiable. Age, sex, and race/ethnicity are non modifiable risk factors for both ischemic and haemorrhagic stroke, while hypertension, smoking, diet, and physical inactivity are among some of the more commonly reported modifiable risk factors.[10]

Stroke prevention has generally focused on modifiable risk factors. Lifestyle and behavioural modification, such as dietary changes or smoking cessation, not only reduces stroke risk, but also reduces the risk of other cardiovascular diseases. Other prevention strategies include identifying and treating medical conditions, such as hypertension and diabetes, that increase stroke risk. [10]

The risk factors for stroke are similar to those for coronary heart disease and other vascular diseases. Effective prevention strategies include targeting the key modifiable factors: hypertension, elevated lipids and diabetes. Risks due to lifestyle factors can also be addressed: smoking, low physical activity levels, unhealthy diet and abdominal obesity.[11]Combinations of such prevention strategies have proved effective in reducing stroke mortality .[12]

World stroke association practices warning signs of stroke using the acronym FAST (face, arm, speech, time) message campaign, to explain knowing the signs of stroke and getting treatment quickly saves lives and improves recovery even though the stroke burden is increasing globally. A good functional outcome from a stroke begins when the public recognizes stroke warning signs. However, the public's knowledge of stroke warning signs remains poor. Evidence from studies in developed and developing countries shows that respondents' recognition of any of the established stroke risk factors or warning signs is generally less than 50%. A pre-hospital delay is shortened through advanced notification of stroke warning signs. The overall stroke burden has increased globally, due to poor community knowledge of stroke risk factors and its warning signs. Necessary intervention should be carried out to decrease stroke , otherwise, the total death from it is anticipated to increase.[13]

The last two decades have seen a revolution in the treatment of acute ischemic stroke (AIS), initially with the use of intravenous thrombolysis (IVT) and more recently with the advent of endovascular thrombectomy (EVT) . An increasing number of patients have had access to therapy over recent years due to improvements in

pre- and intra- hospital systems. However, both these therapeutic modalities are time dependant and analyses have shown that better outcomes can be expected when treatment is administered sooner rather than later within the therapeutic window. Recent analyses into outcomes of treatment have shown that treatment within 60 min of symptom onset produces excellent outcomes with significantly lower rates of morbidity and mortality in younger patients. The authors suggest that the results are so encouraging that pre-hospital IVT should be the way forward in AIS treatment. This remarkable 60 min window from the onset of symptoms has been increasingly known as The Golden Hour.[14]

Nurses play an important role in patient education and rehabilitation. They can help the patients to enhance their ability in doing daily activities by educating, changing attitudes and focusing on the remaining abilities of the patients.[15] As one of the architects of the stroke care team, the nurse plays a vital role in collaborating and coordinating care between multiple health professionals. Nurses are integral to implementing education strategies by advocating and ensuring that patients and caregivers receive stroke education and are safely transitioned through the health care system and to home.

Stroke is a significant global health problem and a major cause of mortality and morbidity in developed countries and increasingly in low-middle income countries (LMICs).Seventy percent of strokes occur in LMICs, and the subsequent disease burden is greater than that of high-income countries.Life expectancy in India has recently increased to over 60 years of ageleading to an increase in age-related, non-communicable diseases including stroke;making stroke India's fourth leading cause of death and fifth leading cause of disability.[16]

To address the rising burden of stroke in India, reliable data on stroke incidence, prevalence, and outcome is needed to inform healthcare policies and the organization of stroke services and to track the impact of any changes in care.In 2016, the Global Burden of Disease projectestimated the number of incident cases of stroke in India to be 1,175,778. In a recent systematic review, consisting mainly of cross-sectional studies, the incidence of stroke in India was estimated to be between 105 and 152/100,000 people per year.[16]

According to the survey conducted by the Indian council of research , it was found that the prevalence of stroke varies from 40 to 270 in 100,000 populations in different regions in India and most of the population effected are <40 years of age. According to World Health Organization, stroke is "a rapidly developed clinical sign of focal disturbance of cerebral function of presumed vascular origin and of more than 24 h".[17]

Stroke is the leading cause of mortality and disability worldwide, with more than 13 million new cases per year, and is associated with an increased economic burden due to different treatments and post-stroke care. Despite the rapid evolution of the generalization of intravenous thrombolysis in recent years in the countries of the Middle East and North Africa,the average symptom onset to arrival at a stroke center or emergency department (onset-to-door time [ODT]) of patients with ischemic stroke in remains very long, possibly resulting from a lack of knowledge, particularly of the first warning signs of an ischemic stroke, according to a recent systematic review [18].

Consequently, insufficient knowledge of risk factors, warning signs, and urgent therapeutic approach options have been identified as a serious cause of increased mortality and morbidity due to stroke. Similarly, this knowledge deficiency has been identified as one of the significant barriers to accessing quality health care for stroke in Africa, as well as a factor affecting pre-hospital time. Several studies in various countries have all confirmed the persistence of a low level of knowledge among the general public about stroke, and more specifically about risk factors and warning signs [18].Primary prevention through adequate knowledge of its risk factors and its control or modification remains the best solution.

Need And Significance

Stroke is a significant global health problem and a major cause of mortality and morbidity in developed countries and increasingly in low-middle income countries (LMICs).[16]

The burden of Non-Communicable Diseases is increasing in our country over the past few years. As per estimates, these diseases now account for more than 62% of all deaths thereby surpassing communicable diseases, maternal and neonatal diseases in the country. Among the NCDs, Stroke is one of the leading causes of mortality and disability.

Changes in lifestyles, behavioural patterns, demographic profile (aging population), socio-cultural and technological advancements are leading to sharp increases in the prevalence of stroke.[19]

Stroke remains the leading cause of death and disability combined (as expressed by disability-adjusted life-years lost - DALYs) in the world. The estimated global cost of stroke is over US$721 billion (0.66% of the global GDP). From 1990 to 2019, the burden (in terms of the absolute number of cases) increased substantially

(70.0% increase in incident strokes, 43.0% deaths from stroke, 102.0% prevalent strokes, and 143.0% DALYs), with the bulk of the global stroke burden (86.0% of deaths and 89.0% of DALYs) residing in lower-income and lower-middle-income countries (LMIC).[20]

In India, incidence of stroke is higher than that of western countries.[25] According to a recent systematic review, the annual incidence of stroke in India ranges from 152 to 262 cases and the prevalence rate ranges from 44.29 to 559 cases, per 1 lakh population.[21]

A remarkable lack of knowledge of the population regarding the risk factors for stroke have been detected in many previous surveys. So, there is a necessity for assessing the risk factors of stroke which helps in bringing stroke awareness and its prevention.

At the International Journal of Stroke (IJS), stroke in India by Stephanie Jones et al., published Crude incidence of stroke in India ranged from 108 to 172 per 100,000 per annum with 1month case fatality rates between 18% and 42%, considerably higher than that observed in developed nations.[16]

Stroke is associated with a considerable burden of disability and loss of quality-adjusted life years.Increased knowledge of stroke risk factors in the population may lead to improved prevention of stroke. Perceived risk of disease has been associated with better compliance and risk factor control. In population-based surveys, the percentage of participants who were able to name ≥1 correct stroke risk factor ranged from 60% to 76%. In patients with an increased risk for stroke, knowledge about stroke risk factors was similar or even lower. In most surveys, hypertension was the most frequently mentioned risk factor for stroke, followed by smoking, alcohol, or unhealthy diet.Different sources of information, such as mass media, friends and family, or medical professionals, are used by people.Before the development and implementation of effective health education programs about stroke risk factors, it is important to identify people at risk for a lower level of knowledge and to analyze what source of information may be used for knowledge transfer in these people.[22]

A population based survey was conducted in Berlin among 28 090 of 75 720 residents who were over 50 years of age enquiring about knowledge of stroke risk factors. Of all respondents, 68% were able to name more than 1 correct stroke risk factor, and 13% named 4 correct risk factors. Knowledge was assessed in an open-ended question. In addition, we enquired about the source of participants' information. Sociodemographic factors, including age, sex, educational level, and nationality, were also assessed.[22]

An observational study was conducted on 526 stroke patients across India over six tertiary care hospitals from September 2016 to July 2017 to examine the risk factors for ischemic and haemorrhagic strokes was determined using the National Institutes of Health Stroke Scale (NIHSS). Hypertension and diabetes mellitus were the commonest comorbidities, followed by a history of ischemic heart disease and familial history of stroke. Based on the diagnoses, 56.8% were ischemic, 18.6% were haemorrhagic, 1.1% had a transient ischemic attack, 6.6% suffered recurrent strokes, and 17% were other forms. The study was concluded by stating that the foremost risk factors for stroke in India, hypertension and diabetes, need to be controlled and treated like other global high-risk populations for stroke prevention.[23]

Strokes continue to be a global health issue and a social problem, a situation expected to worsen in the coming years as the population ages. The treatment of strokes is a dynamic process, in which time is the most critical factor impacting the appropriate performance of the interventions held for acute stroke and determining the patient's final prognosis. Many patients do not receive treatment because of the delay in the presentation to the hospital, which results in exceeding the time point at which the treatment is efficacious. Several studies have identified that one of the main reasons behind the extension of this timeframe, between the onset of the symptoms and the arrival at the hospital, is the lack of knowledge regarding the warning signs and risk factors (RFs) associated with stroke. Public awareness messages, such as "Stroke Chain of Survival", "Time is Brain", or "Face, Arms, Speech, Time (FAST)", have been spread and programs have been developed in order to accentuate stroke as a condition of medical emergency and to reduce delays in hospitalization. These programs are based on the premise that better knowledge of the warning signs associated with stroke would lead to improved recognition of the possible event and an immediate call and activation of the pre-hospital emergency team. Knowledge regarding the Risk factors associated with stroke might improve the primary and secondary prevention, and encourage people to adopt preventive behaviours through lifestyle modification, leading to a decreased incidence of cerebrovascular problems in the future.[24]

A cross-sectional telephonic interview-based survey was conducted in the states of Punjab, Haryana, and Himachal Pradesh of North India from August 2017 to December 2017. Of 350 respondents those participated in the survey with a mean age standard deviation of 39.93 ± 13.41 years, hypertension was found to be the most common risk factor among the study participants and 28.85% of the study participants were not aware of the risk factors, whereas 46% of the participants were not aware of warning signs of stroke.[25]

A prospective cohort study was conducted in Amala Institute of Medical Sciences, Thrissur, Kerala, from January 2014 to January 2015 that evaluated 464 patients admitted with a diagnosis of stroke. Patients were classified into ischemic and hemorrhagic stroke based on the investigations. Of the total 464 patients, 44.6% were female and 55.4% were male. Majority of the cases were observed in the age group between 61 and 70 years. Among them, 63.6% of patients were hypertensive, 45.5% were diabetic, 12.7% had a cardiac disease, and 0.6% of patients had peripheral vascular disease. The incidence of hemorrhagic stroke was 27.8% and ischemic stroke was 72.2%. The study concluded by saying that systemic hypertension followed by diabetes mellitus was the prime risk factor contributing to stroke among Central Keralites. So there is an urgent need to improve the lifestyle of people,especially in the age group between 61 and 70 years who were the most susceptible to stroke by implementing proper monitoring and control of modifiable risk factors.[26]

A prospective study was conducted at a super specialty hospital in Karnataka, from December 2010 to July 2011 in order to assess the awareness of stroke risk factors. The study included the patients over the age group of 25 years. A total of 100 patients with stroke or cerebrovascular accident were included in the study.Among them, 73% patients had ischemic stroke and 26% patients had hemorrhagic stroke. The mean age of the patients was 50 years and the incidence of stroke was predominant in males 73%, followed by females 27. It was observed that 70% of patients were hypertensive, 28% were diabetics, 27% were alcoholics, and 24% of patients had a habit of smoking, followed by others. The knowledge of the risk factors for stroke in stroke survivors was also very low, and the knowledge was varied among the subjects according to their level of educational status. This study reveals that hypertension is the most common risk factor for stroke followed by diabetes, smoking, and dyslipidaemia and the stroke survivors have poor awareness on risk factors of stroke.[17]

There is an increasing focus on people living with various chronic conditions and self-management support programs emphasizing the patient's active role in managing their illness. Nurses play a larger role in informing stroke survivors and their caregivers on various aspects of their disease process and actively engaging them in stroke prevention programs at each encounter in various clinical settings.[27] Multiple risk factors increase the probability of stroke. Patients with identified risk factors can be educated regarding the risk factors and thus reduces this risk.As a nurse educator, the investigator felt the need of assessing the risk factors of stroke as it is an increasing threat to health and to improve the quality of life by promoting healthy behavioural practices.

STATEMENT OF THE PROBLEM

A study to assess the stroke risk among patients attending OPD's of the selected hospital, Pathanamthitta District with a view to prepare an information booklet.

OBJECTIVES

1. Assess the stroke risk among patients attending OPD's of the selected hospital.
2. Find out the association between stroke risk and selected baseline variables of patients.

Operational Definitions

Assess

In this study, assess refers to the act of identifying stroke risk among patients.

Stroke risk

In this study, stroke risk refers to the factors that increases the chance of getting stroke in a person which includes high blood pressure, increased heart rate, hyperglycemia, lipidemia, lack of exercise and sedentary life style ,habit of smoking and family history of stroke which is elicited by administering the stroke risk score card.

Patients

In this study, patients refers to the people attending the OPDs of the selected hospital.

Information booklet

In this study information booklet refers to a small thin book about stroke prepared by the investigator for patients who are attending the OPDs of the selected hospital which contains information regarding meaning and definition of stroke, warning signs of stroke (FAST), early manifestations of stroke, and prevention of stroke (lifestyle modifications).

Research approach

Research approach is the blueprint to conduct a research study and also the researcher's overall plan for answering the research questions. The research approach consists of quantitative method, qualitative method and combination of two methods.[64]

Quantitative research approach was used in the present study.

Research design

The research design is the master plan specifying the methods and procedures for collecting and analyzing the needed information in a research study.[63]

Descriptive study design was selected for the present study.

Setting of the study

Setting is the location for conducting research; it can be natural, partially controlled or highly controlled.[64]

The present study was conducted in MGM Muthoot hospital Kozhencherry in Pathanamthitta district. This is the 1st NABH Accredited hospital in Central Travancore and one of the handfuls of NABH Nursing Excellence certified hospitals in the region. Since its inception in 1988, MGM Muthoot Hospital, Kozhencherry is committed to providing high quality specialized healthcare services to the community. With over 15 specialties and 9 super specialty medical services and a team of renowned specialists with decades of experience. The criteria for selection of the study setting was focused on the feasibility and familiarity of the researcher in carrying out the study.

Population

The entire set of individuals or subjects having some common characteristics for the research study is population.[64]

In this study, population encompasses patients attending the OPDs of the selected hospital, Pathanamthitta district.

Sample and sampling technique

Sample refers to a selected proportion of the defined population. [63]

In this study, the sample consisted of 320 patients.

Sampling technique is a process of selecting representative units from an entire population of the study. [64]

Convenience sampling technique was used for the selection of samples in this study.

Inclusion criteria

The present study included patients,

- who were in the age group of 30-70 years
- who were available during the time of data collection.
- of both male and female
- who were willing to participate in the study

Exclusion criteria

The present study excluded,

- critically ill patients
- cognitively impaired patients

Tool / Instruments

The data were collected using the following tools.

Tool 1:- Baseline assessment Proforma

Tool 2:-Stroke Risk score card

Development /Selection of the Tool

An instrument is a device used to collect data. The researcher prepared/ selected the tool according to the objectives of the study.

After an extensive review of literature and discussion with the guide and experts from Neuro Medicine and Nursing Education, Stroke risk score card was selected for the present study.

Baseline assessment proforma was developed by the researcher with the help of reviewed literature and in consultation with the subject experts. Personal experience of the researcher was also counted in preparing and selecting the tool.

An information booklet on stroke was prepared by the researcher for the patients which contains informations regarding meaning and definition of stroke ,risk factors of stroke, warning signs of stroke {FAST} ,early manifestations of stroke and prevention of stroke { lifestyle modifications}.

Description of the tool

Tool 1:-Baseline assessment Proforma

It consisted of 7 items related to the baseline variables of the samples. It includes age, gender, educational qualification, occupation, monthly income of family, living area and type of diet.

Tool 2 :- Stroke risk assessment score card and scoring

The tool consisted of 8 items to assess the risk of stroke. The tool has components such as blood pressure, atrial fibrillation, smoking, cholesterol, diabetes, exercise, diet and stroke in family.

Each component has three categories: **high risk**, **caution** and **low risk.**

Content Validity

Content validity concerns the degree to which an instrument has an appropriate sample of items for the construct being measured.[64]

In order to infer the content validity of the tools, the prepared tool along with the problem statement, objectives, hypotheses and operational definitions were submitted to 5 experts. The experts were from the field of Medical Surgical Nursing and Neuro Medicine. The selection of experts was done based on their experience and clinical expertise. The experts were requested to judge the items for further modifications. A criterion rating scale for validation of the tool was developed with options like relevant, need modification, not relevant and remarks from the experts.

The tool was modified and finalized based on the suggestions received from the experts. Tool was found to be valid.

Pilot study

A pilot study is referred to a small scale preliminary study conducted in order to evaluate feasibility, time, cost, adverse events, and effect size (statistical variability) in an attempt to predict an appropriate sample size and improve upon the study design prior to performance of a full-scale research project.[64]

Pilot study was conducted at Muthoot Hospital, Kozhencherry, in the month of January 2022. Prior to the study, permission was obtained from the concerned authority. Thirty two patients were selected through convenience sampling technique. The study got clearance from the institutional ethics committee before carrying

out the pilot study. The patients who met the inclusion and exclusion criteria were selected. Baseline assessment proforma and stroke risk score card were administered to the patients after obtaining an individual written informed consent from all the study participants. It took 10-15 minutes to complete the tools.

The collected data were analyzed using descriptive and inferential statistics. Frequency and Percentage were used for describing the baseline variables of the patients. Chi –square test was used to find the association between stroke risk and selected baseline variables of the patients.

After conducting the pilot study, it was found that the tool was relevant, the time and cost for the study were within the limits. So the researcher planned to carry out the data collection for the main study on the same way as the pilot study was conducted.

Data collection process

Data collection is the process of gathering information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses and evaluate outcomes.[64]

Data collection was done in MGM Muthoot hospital, Kozhencherry, during the period 17.01.2022 to 05.02.2022. After obtaining a formal permission from the concerned authority of the hospital, data were collected from the medical and neuro medicine OPDs of the selected hospital. 320 patients who were attending the OPDs were selected as per the inclusion and exclusion criteria using convenience sampling technique. The purpose of the study was explained to the samples and an individual written informed consent was taken from all the study participants after explaining the need of the study. The confidentiality of the information was maintained. Data was collected using baseline assessment proforma and stroke risk score card. Frequency and Percentage were used for describing the baseline variables of the patients. Chi –square test was used to find the association between stroke risk and selected baseline variables of the patients.

Plan for data analysis

Data analysis is planned based on the objective of the study.[64]

Analysis is a process of organizing and consolidating data in such a way that research questions can be answered.

After the collection of the data, the data were organized, tabulated and summarized by preparing the master data sheet and by using descriptive and inferential statistics using SPSS (statistical package for social science), version16. The Analysis was organised under the following sections:

Section 1:-Baseline variables and stroke risk scores.

Section 2:- Association of stroke risk with baseline variables.

ANALYSIS AND INTERPRETATION

Analysis has been defined as categorizing, ordering, manipulating and summarizing the data to obtain answers to research questions.Analysis is the process of organizing and synthesizing the data so as to answer research questions and test hypothesis. Analysis and interpretation of the data is the most important phase of the research process. The data used is to be systematically analyzed so that trends and patterns of relationship can be detected.[64]

In this study the data were analyzed based on the objectives of the study using descriptive and inferential statistics.

Organization of study finding

Section I: Distribution of patients according to baseline variables.

This section deals with the distribution of patients based on the selected baseline variables such as age, gender, educational status, occupation, total income per month, living area, and type of diet.

(N=320)

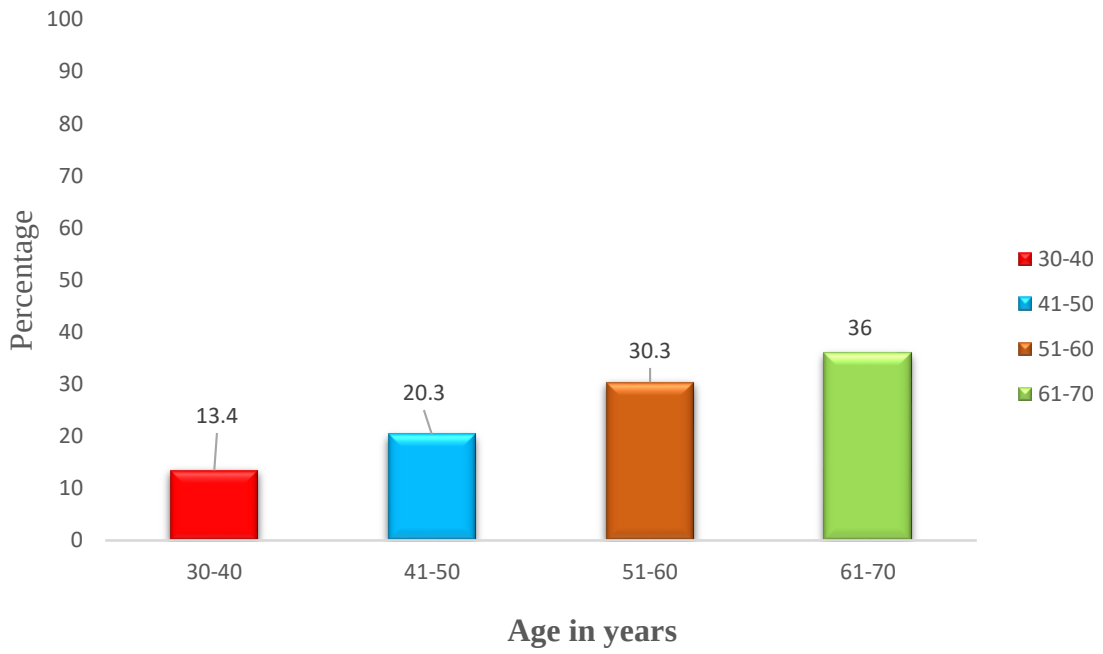

Figure 2: Bar diagram showing distribution of patients based on age

From this figure, it is evident that majority of the patients belong to the age group of 61-70 years, 30.3% of the patients belong to the age group of 51-60 years, 20.3 % of the patients belong to the age group of 41-50 years and only 13.4 % of the patients belong to the age group of 30-40 years.

(N=320)

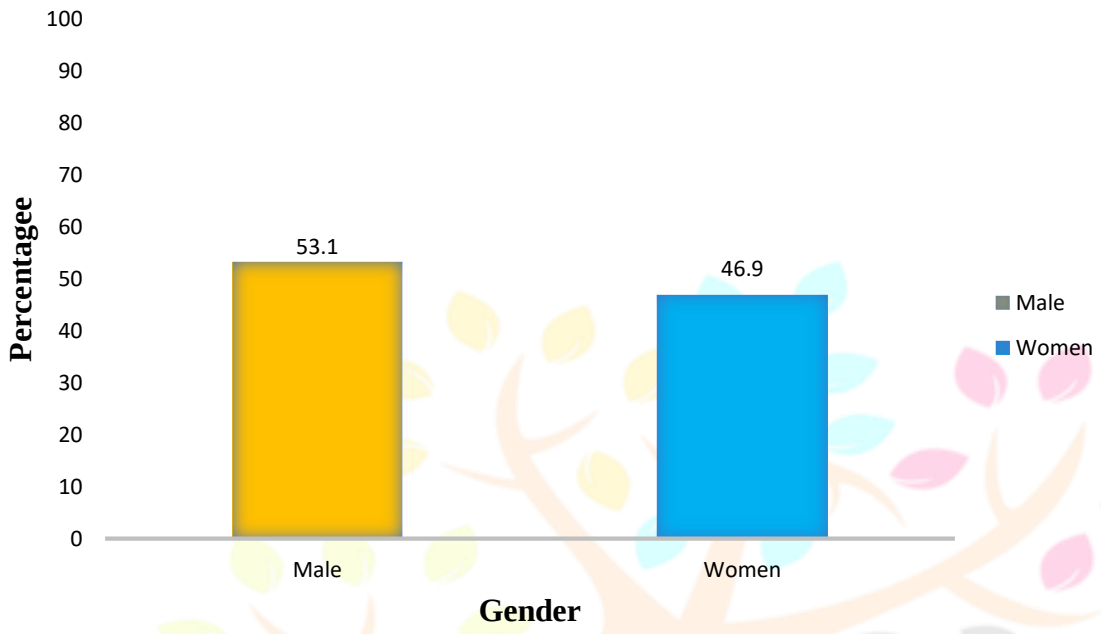

Figure 3: Bar diagram showing distribution of patients based on gender

Figure 3 shows that majority of the patients, 53.1% were males and 46.9% were females.

(N=320)

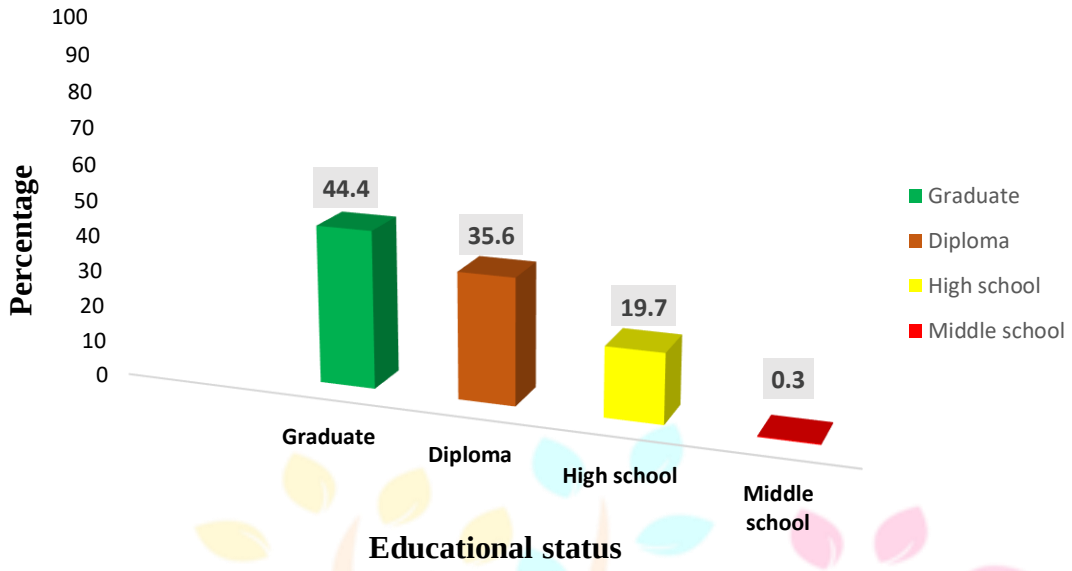

Figure 4: Bar diagram showing distribution of patients based on educational status

Figure 4 shows that majority of patients, 44.4% were graduates, 35.6% of the patients were diploma holders, 19.7% of the patients were completed high school education and 0.3% of the patients were completed only middle school education.

(N=320)

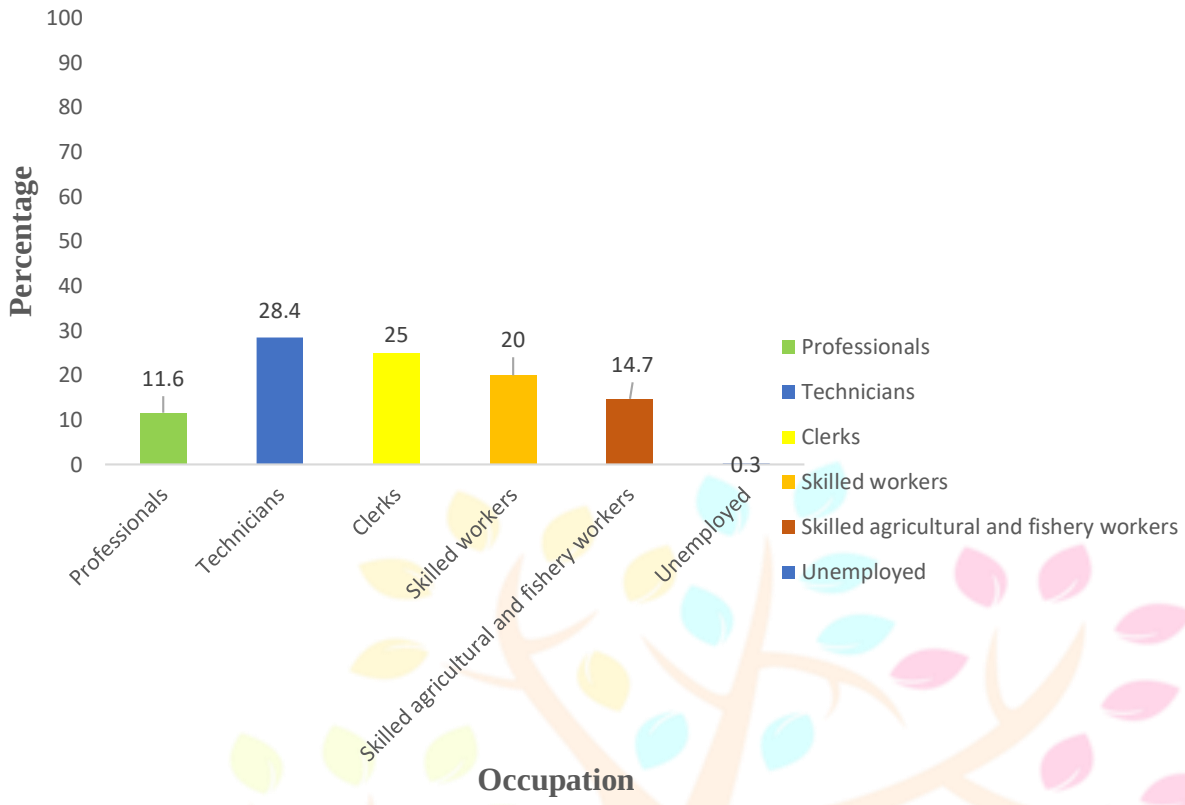

Figure 5: Bar diagram showing distribution of patients based on occupation

It is evident from the figure that 28.4% of the patients were technicians, 25% of the patients were clerks, 20% of the patients were skilled workers, 14.7% of the patients were agricultural and fishery workers and only 0.3% of the patients were unemployed

(N=320)

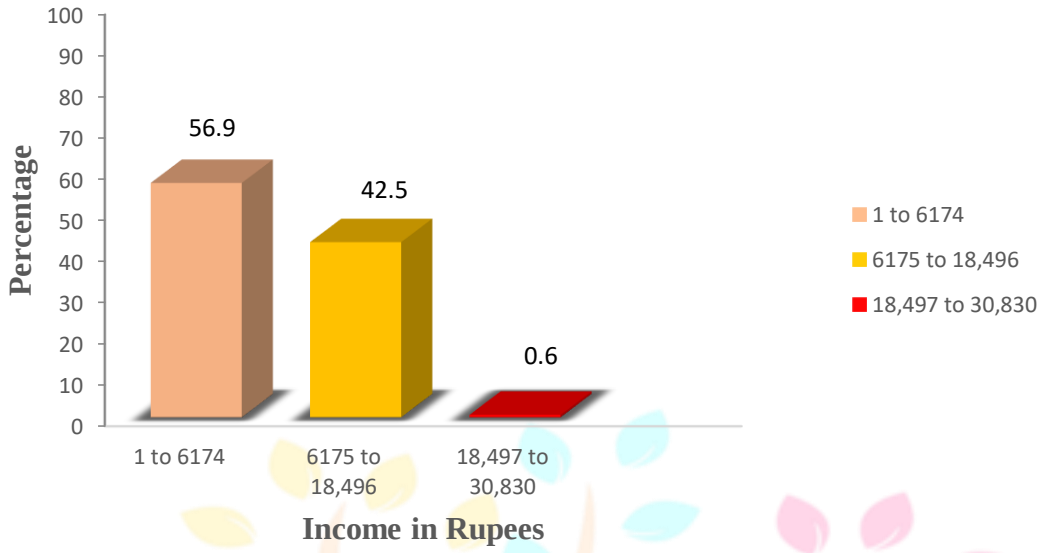

Figure 6: Bar diagram showing distribution of patients based on income

Figure 6 shows that 56.9% patients were having monthly income between Rs. 1 to 6174, 42.5% of the patients were having the monthly income between Rs.6175 to 18,496 and only 0.6 % of the patients were having the monthly income between Rs. 18,497 to 30,830.

(N=320)

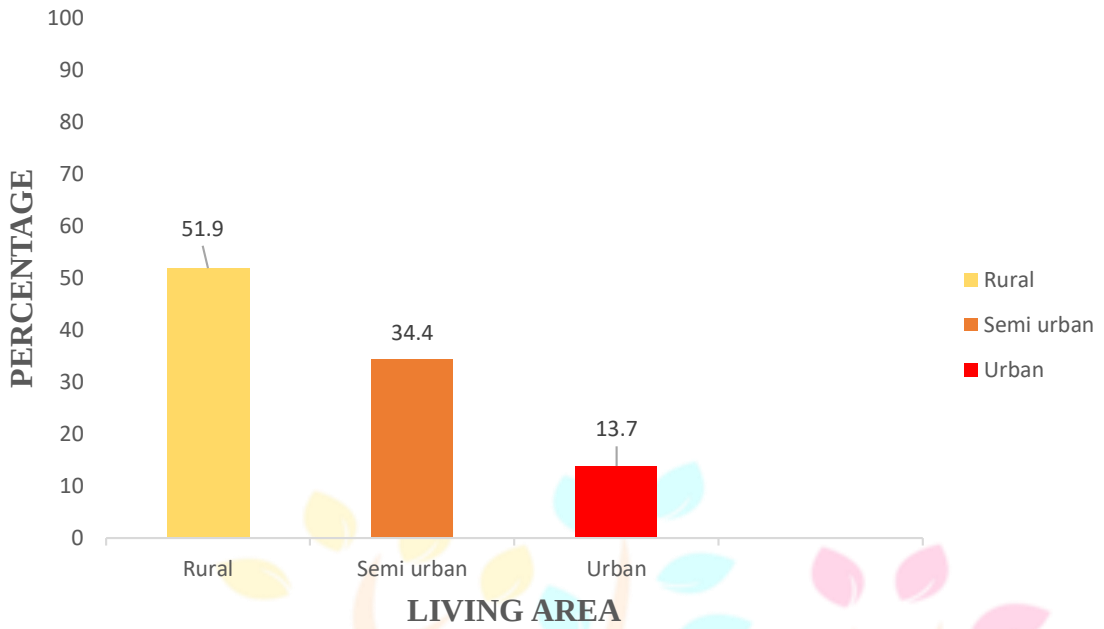

Figure 7: Bar diagram showing distribution of patients based on living area

This Figure shows that the majority 51.9% of patients were living in rural area and 34.4% of the patients were living in Semi urban area and 13.7% of the patients were living in Urban area.

(N=320)

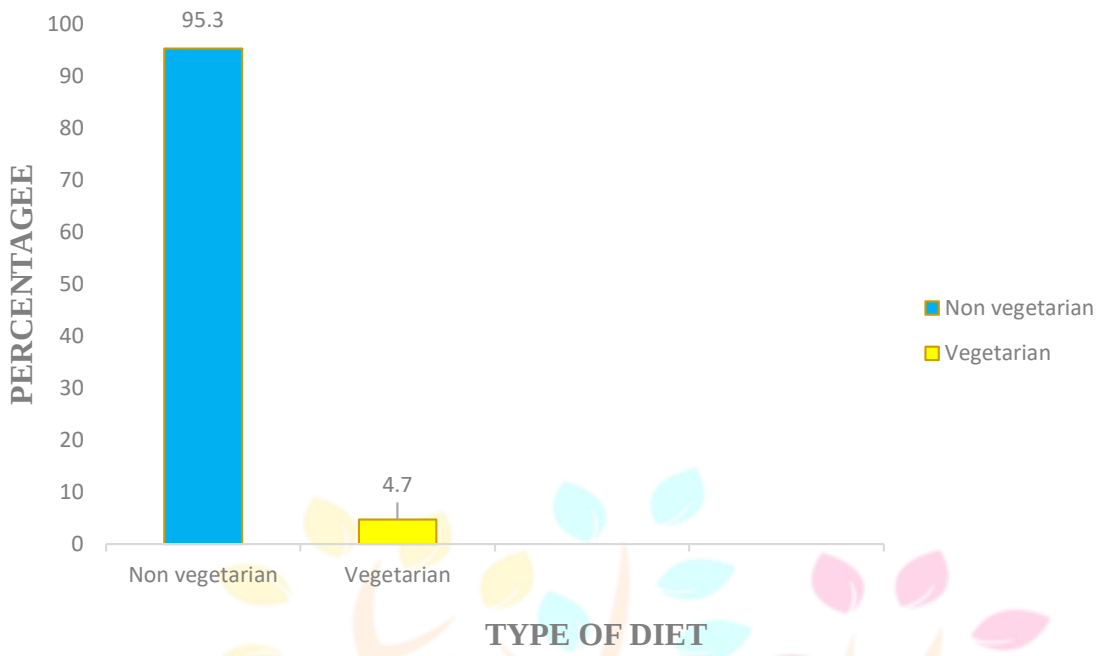

Figure 8: Bar diagram showing distribution of patients based on type of diet

From this figure 95.3% of the patients were non-vegetarians and only 4.7% were vegetarians.

Section II: Distribution of patients according to stroke risk score.

This section deals with the distribution of patients according to the stroke risk score as High, Caution and Low risk.

(N=320)

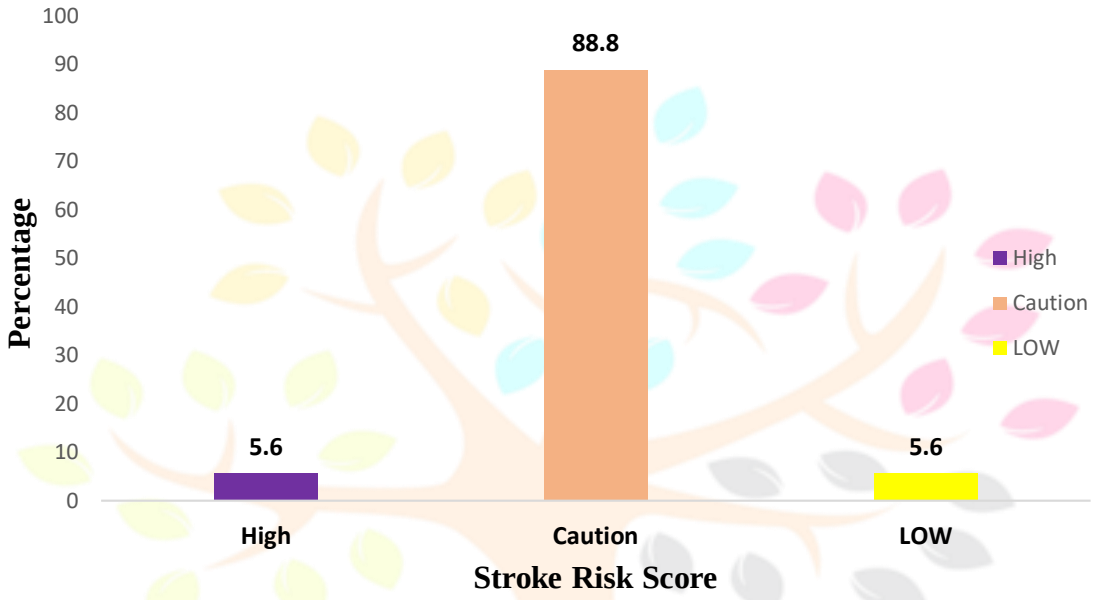

Figure 9:- Bar diagram showing distribution of patients based on stroke risk scores.

Figure 9 reveals that the majority of patients, 88.8% of the patients belong to the category of caution and 5.6% of the patients belong to high and low risk categories respectively.

Section III: Association between baseline variables and stroke risk scores.

In order to determine the association between baseline variables and stroke risk scores, chi square test was computed and the data were presented as follows.

(N=320)

Table 7: Association between age and stroke risk score

Age in years	Stroke risk score						$\chi 2$
	High		Caution		Low		
	f	%	f	%	f	%	
30-40	0	0	36	11.25	7	2.18	10.35*
41-50	3	0.93	58	18.13	4	1.25	
51-60	5	1.56	87	27.18	5	1.56	
61-70	10	3.12	103	32.18	2	0.65	

***P value = 0.03**

The table shows that there is a significant association found between age and stroke risk scores ($p<0.05$)

Table 8: Association between gender and stroke risk score

(N=320)

Gender	Stroke risk score						$\chi 2$
	High		Caution		Low		
	f	%	f	%	f	%	
Male	12	3.75	150	46.87	8	2.5	1.88
Female	6	1.87	134	41.87	10	3.14	NS

NS – Not significant

The data presented in the table 8 shows that computed chi-square value for gender was 1.88, which is statistically not associated with the stroke risk scores.

Table 9: Association between education and stroke risk score

(N=320)

Education	Stroke risk score						$\chi 2$
	High		Caution		Low		
	f	%	f	%	f	%	
Graduate	5	1.56	124	38.76	13	4.06	10.64
Diploma	6	1.87	104	32.5	4	1.26	NS
High school	7	2.18	55	17.19	1	0.31	
Middle school	0	0	1	0.31	0	0	

NS – Not significant

As shown in table 9 that there was statistically no association found between education and stroke risk scores.

Table 10: Association between occupation and Stroke risk score

(N=320)

Occupation	Stroke risk score						$\chi 2$
	High		Caution		Low		
	f	%	f	%	f	%	
Professionals	0	0	32	10	5	1.56	22.14*
Technicians	1	0.31	84	26.25	6	1.87	

Clerks	8	2.5	65	20.31	7	2.18
Skilled workers	5	1.56	59	18.43	0	0
Agricultural & Fishery	4	1.25	43	13.43	0	0
Unemployed	0	0	1	0.31	0	0

***P value = 0.01**

From the table, it is clear that the computed chi-square value of occupation is 22.14 which indicates that there was statistically association between occupation and Stroke risk scores ($p<0.05$).

Table 11: Association between Income and Stroke risk score

(N=320)

Income in Rupees	**Stroke risk score**						**$\chi 2$**
	High		**Caution**		**Low**		
	f	**%**	**f**	**%**	**f**	**%**	
≤6174	14	4.38	160	50	8	2.5	4.6
6175-18,496	4	1.26	122	38.12	10	3.12	NS
18,497-30,830	0	0	2	0.62	0	0	

NS = Not significant

As shown in table11 that the computed chi-square value of income was 4.6 which is statistically not associated with Stroke risk scores.

Table 12: Association between Living area and Stroke risk score

(N=320)

Living Area	**Stroke risk score**						**χ2**
	High		**Caution**		**Low**		
	f	**%**	**f**	**%**	**f**	**%**	
Rural	11	3.45	148	46.25	7	2.18	6.05
Urban	0	0	39	12.18	5	1.56	NS
Semi urban	7	2.18	97	30.33	6	1.87	

NS = Not significant

As shown in table 12, there was statistically no association between living area and stroke risk scores.

Table 13: Association between Type of diet and Stroke risk score

(N=320)

Type of diet	Stroke risk score						$\chi 2$
	High		Caution		Low		
	f	%	f	%	f	%	
Vegetarian	1	0.32	13	4.06	1	0.31	0.068
Non-vegetarian	17	5.32	271	84.68	17	5.31	NS

NS = Not significant

From table 13, it is evident that there was statistically no association between type of diet and stroke risk score, as the computed chi-square value of type of diet was 0.068

Results

Section I: Distribution of patients according to baseline variables.

Based on age, 13.4% of patients were between the age group of 30-40years, 20.3% of patients were between 41-50 years of age , 30.3% of patients were between 51-60 years of age and 36% of patients were belongs to the age group 61-70 years of age.

Based on gender, majority of the patients 53.1% were males and 46.9% of patients were females.

In the present study, a majority of patients were graduates 44.4%, 35.6% of patients were diploma holders, 19.7% of patients were completed high school education and only 0.3% of patients were completed middle school education.

Based on occupation**,** 28.4% of the patients were technicians, 25% of the patients were clerks, 20% of the patients were skilled workers, 14.7% of the patients were agricultural and fishery workers and only 0.3% of the patients were unemployed.

The study shows that, 56.9% of the patients were having monthly income between Rs. 1 to 6174, 42.5% of the patients were having the monthly income between Rs.6175 to 18,496 and only 0.6 % of the patients were having the monthly income between Rs. 18,497 to 30,830.

From the study**,** it is identified that majority 51.9% of patients were living in rural area and 34.4% of patients were living in Semi urban area and 13.8% of patients were living in urban area.

Regarding the type of diet, 95.3% of the patients were non-vegetarians and only 4.7% of the patients were vegetarians.

Section II : Distribution of patients according to stroke risk score.

The study reveals that the majority of the patients 88.8% were belong to the category of Caution and 5.6% of the patients were belong to high and low risk categories respectively.

Section III: Association between baseline variables and stroke risk scores.

In order to determine the association between baseline variables and stroke risk scores, chi square test was computed.

In this study, there was significant association found between age and stroke risk scores.

There was no significant association found between gender and stroke risk scores.

There was no association found between education and stroke risk scores.

The computed chi-square is 22.14 which indicates that there was significant association found between occupation and Stroke risk scores.

There was no significant association found between income and stroke risk scores.

There was no association found between living area and stroke risk scores.

There was no association found between type of diet and stroke risk score, as the computed chi-square value of type of diet was 0.068.

DISCUSSION, SUMMARY AND CONCLUSION

DISCUSSION

Discussion refers to the findings of the study or how it differs from previous literature. The study was intended to assess the risk factors of stroke.

The results of the study have been discussed under the following sections:

Section 1 : Discussion about baseline variables.

Section 2 : Discussion about stroke risk score

Section 3 : Discussion about association between selected baseline variables and stroke risk scores

Section I : Discussion about baseline variables

The baseline variables selected for the present study were age, gender, education, occupation, monthly income, area of residence and type of diet.

Age

Majority of the patients 36% were between 61-70 years of age, 30.3% of patients were between 51-60 years of age, 20.3% of patients were between 41-50 years of age and 13.4% of patients were between 30-40 years of age.

A prospective observational study on the clinical profile of ischemic stroke was conducted at Government Medical College, Thrissur, Kerala among 100 patients above the age of 18 years. The majority of the patients, 63% were above 65 years of age and 54 % of patients were above the age group of 65-74 years. [65]

An observational study conducted among 100, successive elderly patients aged 60 years and above, admitted with acute ischemic stroke in PESIMSR (People's Education Society Institute of Medical Sciences and Research Kuppam, Chittoor District, Andhra Pradesh) over a period of 18 months from October 2013 to March 2015 were prospectively studied. Patients in age group 60-75 years presented with less severe stroke and better mRS (modified ranking scale) when compared to >75 years age group. Complications were significantly higher among the older age group. The study concluded that age specific factors of stroke prevention are crucial for successful prevention and implementation of well-organized stroke care.[66]

A case control study conducted to find out the risk factors of stroke among 53 cases and 106 controls in coastal villages of Uttara Kannada district revealed that most of the cases and controls belonged to the elderly age group of 60-69 years.[67]

The above mentioned study findings supports the findings of the present study in terms of age of patients.

Gender

Majority of the patients 53.1% were males and 46.9% of patients were females.

A study conducted in rural Gadchiroli, India that assessed the prevalence of stroke among 175 patients using a questionnaire. The results revealed that majority of patients 68.5% were males and only 32.5% were females.[68]

A prospective observational study was conducted at six tertiary hospitals across India on 526 patients to examine the risk factors of stroke from September 2016 to July 2017. Severity was assessed using the National Institutes of Health Stroke Scale (NIHSS). In this study, 75% of patients were males .[47]

The above mentioned study findings supports the findings of the present study in terms of gender of patients.

Education

Majority of patients were graduates 44.4%, 35.6% of patients were diploma holders, 19.7% of patients were completed high school education and 0.3% of patients were completed middle school education.

Occupation

In the present study, Kuppuswamy's socio economic scale was used for classifying occupation.10 categories were used according to this. They are Legislators, Senior Officials & Managers, professionals, technicians, clerks, skilled workers, shop and market sales workers, skilled agricultural & fishery workers, craft & related trade workers, plant & machine operators and assemblers, elementary occupation, and unemployed. 28.4% of the patients were technicians, 25% of the patients were clerks, 20% of the patients were skilled workers, 14.7% of the patients were agricultural and fishery workers and only 0.3% of the patients were unemployed.

Income

Based on the Kuppuswamy's socio economic scale out of 320 samples majority 56.9% of the patients were having monthly income between Rs. 1 to 6174, 42.5% of the patients were having the monthly income between Rs.6175 to 18,496 and only 0.6 % of the patients were having the monthly income between Rs. 18,497 to 30,830.

Living area

Majority 51.9% of patients were living in rural area, 34.4% of patients living in semi urban area and 13.8% of patients were living in urban area.

The present study findings are supported by a similar study conducted to assess the CVA cases in JA group of hospitals, Gwalior. The study was conducted among 50 patients. The results revealed that majority of 30 patients (60%) were from rural and 20(40%) were from urban area.

Type of diet

With regard to type of diet 95.3% of the patients were non-vegetarians and only 4.7% of the patients were vegetarians.

Section 2: Discussion about stroke risk score

The study reveals that the majority of the patients 88.8% were belong to the category of caution and 5.6% of the patients were belong to high and low risk categories respectively.

A study was carried out for the residents of Ministry of Health Polytechnic of Jakarta to assess the risk of stroke using stroke risk score card among 150 participants. The results showed that majority of the patients had a warning risk of stroke. This study supports the present study findings as here also the majority of patients comes under the category of caution.[70]

A non experimental descriptive survey was conducted at Banglore, Karnatakato assess the risk of stroke among patients with hypertension ad type 2 diabetes mellitus using stroke risk assessment tool. Out of 60 patients, 48.3 % were in high risk category, 28.3% were in caution and 23.3 % were in low risk category.[71]

A population based study was conducted using a survey analytic study with cross-sectional approach in Indonesia. The sample size of this study was 322.The samples were taken by using simple random sampling technique. The data were collected using stroke risk score card. The results revealed that 20.5% of patients scored under high risk, 22.4% scored under caution, and 57.1% of patients scored under low risk of stroke. [72]

The above mentioned studies and the present study used stroke risk score card in eliciting information regarding the risk of stroke and the findings of one study is similar to that of the present study with regard to the stroke risk score(majority of the participants scored under the category of caution).

Section 3: Association between baseline variables and stroke risk scores

The present study used chi–square test to find out the association between selected baseline variables and stroke risk scores. Significant association found between stroke risk scores and selected baseline variables age and occupation. There was no association found between stroke risk scores and other selected baseline variables like gender, education, income, area of residence and type of diet.

The researcher could not find any studies that supports the finding of the present study in terms of association between stroke risk scores and selected baseline variables.

Summary

The present study was done to assess the stroke risk among patients attending OPD's of the selected hospital, Pathanamthitta District with a view to prepare an information booklet. The objectives of the study were to assess the stroke risk among patients attending OPD's of the selected hospital and to find out the association between stroke risk and selected baseline variables of patients.

The review of literature were taken from books, journals, unpublished dissertations, thesis, books and web sources. In order to achieve the objectives of the study, quantitative research approach with descriptive study design was adopted. The tool consisted of baseline assessment proforma and stroke risk score card. The validity and reliability of the tool were tested and found reliable. Pilot study was conducted among 32 patients during the month of January 2022 to determine the feasibility of the study. Convenience sampling technique was used for sample selection. Pilot study revealed that the objectives of the study could be fulfilled. Based on the information the investigator proceeded with the final study. The main study was conducted in the selected hospital, Pathanamthitta district. Data collection was done during the period 17.01.2022 to 05.02.2022. The samples satisfying inclusion and exclusion criteria were selected by using convenience sampling technique. The study was conducted among 320 patients who attended the OPD's. The investigator introduced herself to the subjects and the purpose of the study was explained to the samples and an individual written informed consent was taken from all the study participants after explaining the need of the study. The confidentiality of the information was maintained. Baseline assessment proforma and stroke risk score card were administered to the patients. It took 10-15 minutes to complete the tools.

Data was systematically tabulated to facilitate data analysis. The collected data were analyzed using descriptive and inferential statistics. Frequency and Percentage were used for describing the baseline variables and stroke risk scores of the patients. Chi –square test was used to find the association between stroke risk and selected baseline variables of the patients.

In the present study the findings revealed that the stroke risk scores is associated with selected baseline variables such as age and occupation. There is no significant association found between other baseline variables and stroke risk scores.

Conclusion

Stroke is one of the leading causes of death globally. Strokes mainly affect individuals at the peak of their productive life. Despite its enormous impact on countries' socio-economic development, this growing crisis has received very little attention to date. Awareness of stroke risk factors and warning signs are important for stroke prevention and seeking care.

The risk factors for stroke can be identified into two factors that cannot be controlled/modified, such as age, gender, heredity, ethnicity, and factors that can be controlled or changed, such as weight factors, hyperglycaemia, and blood pressure, hypercholesterolemia, activity, smoking habits .Thus, various efforts are needed to control stroke risk factors.

The FAST is a short, easy to remember mnemonic aimed at increasing population recognition of common warning signs for stroke (facial paralysis, loss of power in one arm, speech disturbance) and the appropriate behavioural response (phone emergency services immediately). This is considered an advantage in stroke education.

The most crucial predictor of outcome of treatment of stroke is the time period, often called golden time. Prompt access to medical services after noticing the initial symptoms may increase the chances of a favourable outcome. Stroke is a preventable disease. Accurate knowledge of stroke risk factors and warning signs, right attitude, and proper practices of stroke prevention are shown to reduce the incidence of stroke.

The present study was aimed to assess the stroke risk among patients attending the OPD's of the selected hospital.

The study reveals that the majority of the patients 88.8% were belong to the category of caution and 5.6% of the patients were belong to high and low risk categories respectively.

In this study, significant association were found between stroke risk scores and the selected baseline variables, age and occupation.

There were no association found between stroke risk scores and other baseline variables such as gender, education, income, area of residence and type of diet. This result highlighted the importance of giving proper health education regarding the stroke risk factors, its prevention and management.

The identification of risk factors of stroke helps to reduce the increasing burden of stroke in Indian populations. The burden of stroke in the developing world is likely to increase substantially, partly because of ongoing demographic changes, including the aging of the population and health transitions in these countries. The current findings provide an evidence base to successfully meet the challenges while devising appropriate strategies to curtail the strategies targeted for risk factor modification.

Nurses plays an important role in interventions that resulted in significant reductions in blood pressure, improvement in diet, physical activity, medication adherence, and knowledge of stroke risk factors. The common interventions where nurses played a major role includes education and counselling on lifestyle modifications, medical risk factors, and medication adherence, individual goal-setting and action planning, encouragement of patients to visit their family physicians and collaborating with physicians, and providing written and verbal information to patients. It was clear that nurses were facilitating complex interventions that often required individual tailoring and progression. They play a key role in managing chronic illnesses, health promotion and disease prevention. This places nurses in an ideal position to reinforce self-management skills at each encounter to influence stroke survivors to make healthy lifestyle changes.

NURSING IMPLICATIONS

The findings of the study have implications in the field of nursing practice, nursing education, nursing administration and nursing research. The nurse as a professional health care practitioner can make a significant contribution in providing interventions that help to understand the importance of stroke risk factors, its prevention and management.

Nursing Service

1. The study sensitize the nurses to promote awareness among the public about various aspects of stroke and put these knowledge in to their practice.

2. This study brings awareness among nurses regarding the vital aspects to be covered in the patient and family education programmes on stroke which includes risk factors, early warning signs, FAST, and lifestyle modifications.
3. Nurses play a major role in the health care delivery system by taking measures to improve the knowledge and positive attitude of individuals towards health promoting behaviours which helps in preventing stroke.
4. This study helps the nurses to understand about the importance of conducting medical camps to identify people at risk for getting stroke and provide teaching and counselling sessions.
5. The present study helps the nurses to conduct screening and educational programmes for patients in the wards and outpatient departments on stroke which should be supplemented with distribution of information booklets, posters, pamphlets or any other learning material

Nursing education

1. This study sensitize the nurse educators and students to conduct screening programmes in community to identify people at risk for getting stroke and provide teaching and counselling sessions.
2. Nurse educators can organize seminars, symposium and workshops about various aspects of stroke for bringing awareness among students.
3. This study brings awareness among nurse educators and students regarding the importance of giving educational programmes to the public on stroke, its risk factors, early manifestation and lifestyle modifications.
4. This study should focus its attention on motivating the nursing personnel and nursing students who would care to individuals in the hospital and community with aim of promoting health in all patients and their relatives.
5. Nurse educators have additional responsibility to update the knowledge of diabetic and hypertensive patients regarding the measures which are helpful in preventing complications such as stroke.
6. Nurse educators and students should be aware about the evidence based practices and recent advancements which helps to identify risk groups and implement preventive measures aiming at lifestyle modifications among the public.

Nursing administration

1. Nurse administrators can develop policies and protocols aiming at conducting routine screening tests for identifying patients at risk for stroke .
2. Nurse administrators can take initiatives in opening special diabetic, hypertensive and geriatric clubs or departments in hospitals for rendering a thorough and timely screening, special care, education and counselling services for lifestyle modifications.
3. Nurse administrators can organize medical camps periodically for identifying the people at risk.
4. Nurse administrators can organize seminars, symposium and workshops about various aspects of stroke for bringing awareness among nurses.
5. Nurse administrators should be aware of the recent advancements in nursing measures which helps to identify risk groups and implement preventive measures so that they could enhance the standards of care delivered to the patients.
6. Nurse administrators should act as a liaison between the patient, family, healthcare providers and the community to enhance preventive and promotive health care services.

Nursing research

1. The study sensitize the need for conducting hospital based nursing studies on different aspects of stroke in India.
2. This study sensitize the need for conducting home or community based nursing studies on different aspects of stroke in India.
3. This study emphasize the need for conducting studies regarding the role of nurses in the preventive aspects of stroke.
4. This study emphasize the need for conducting studies on utilizing various tools in screening at risk patients.

Limitations of the study

1. The study was limited to patients of Muthoot Hospital, Kozhencherry
2. The sample size was limited to 320 samples.
3. The duration of the study was from 17/01/2022 to 05/02/2022

4. The study did not use control group and interventions.
5. Only a single domain was considered in the present study.(stroke risk score)

Recommendations

Based on the findings of the study following recommendations were made

1. A replication of present study can be conducted with a larger sample.
2. A similar study can be conducted in different settings, like in community
3. A comparative study can be conducted between all other risk factors of stroke.
4. A retrospective study can be done on stroke patients regarding the possible risk factors.
5. A study can be conducted by including additional demographic variables and other risk factors.
6. The same study can be conducted on other domains such as knowledge attitude and health practices among patients with transient ischemic attack.
7. Comparative study can be done on the prognosis of stroke among patients with diabetes mellitus and hypertension in contrast with non-diabetic and non-hypertension can be done.
8. Follow up study can be conducted after providing self-instructional module / structured teaching programme and the patients can be followed up prospectively.

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