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Assessment of risk factors of stroke among clients attending medicine OPD, BSMC & H, Bankura, West Bengal

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Abstract
A descriptive study was adopted on the assessment of risk factors of stroke among clients attending medicine OPD, BSMC&H, Bankura, and West Bengal with the objectives to assess the risk factors of stroke among clients attending medicine OPD, BSMC&H and to find out the association between the risk factors of stroke with the selected demographic variables. By non-probability convenience sampling, 180 clients were selected using a semi-structured interview schedule, structured interview schedule, bio-physiological measurement and perceived stress scale. The findings revealed that that 41.11% of clients with 40-50 years of age and 55% of clients were male, 41.78% of clients had a history of hypertension and 32.11% of clients taking antihypertensive medicine, 40.50% of clients has d family history of hypertension, 72.22% of clients had a moderate risk of stroke, 51.11% of clients had normal BMI and 42.22% clients with normal blood pressure without medicine and 72.78% clients with normal blood sugar level without medicine with 93.89% of clients had moderate stress. Statistically significant associations were found between risk factors of stroke with socio-economic class, hypertension with age, history of taking medicine, family history, between blood glucose with age, socioeconomic class, history of taking medicine, family history, level of stress with occupation, treatment of medical illness at 0.05 level of significance. The scope of generalization of findings were limited to the present study population and the study has implicated on nursing practice, education and research.

Keywords: Risk factors, stroke, clients attending medicine OPD

Introduction
Stroke is a major health problem worldwide. The burden of stroke in India gradually rising over the past few decades [1]. A stroke or cerebrovascular accident is an emergency medical condition in which poor flow to the brain causes cell death [2]. According tthe o World Health Organization stroke is a rapidly developed clinical sign of focal disturbance of cerebral function, with symptoms lasting more than 24 hours or longer or leading to death, with no apparent cause other than vascular origin [3]. A stroke is a neurologic change caused by an interruption in the blood supply to a part of the brain. Ischemic and hemorrhagic are the two major types of stroke. Ischemic stroke is caused by a thrombotic or embolic blockage of blood in the brain. Bleeding into the brain tissue or subarachnoid space causes a hemorrhagic stroke [4]. Stroke is the highest risk of death. According to World Health Organization (2022), 15 million people worldwide suffer a stroke annually. Out of these 5 million die and another 5 million are left permanently disabled, causing a burden on family and communities [5]. In a report of The Tribune (2021) stated that stroke affects 18 lakh Indians every year, which means one Indian suffers a stroke every 40 seconds.60% of stroke cases in India lead to disability, and 30% cause death [6]. Stroke is a serious neurological problem with significant morbidity and mortality. In India, the risk factors for stroke are increasing with the increase of economic development and causes the burden of stroke [7]. Stroke leads to the root cause of mortality and morbidity. The incidence of stroke is increasing in developing countries rather than in developed countries [8].

Need of the Study
Stroke is the second leading cause of death and combindly the third leading cause of death and disability in the world.

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From 1990-2019 the burden of stroke increased gradually. The incidence of stroke increased by 70.0%, 102.0% prevalent stroke, and deaths from 43.0% to 86.0% due to stroke in the lower income lower middle-income countries in the world.[22] Incidence of stroke (2017) in Asia varied between 116 and 483/100000 per year [8].

One out of three people in the age group of 30-69 years living in northeastern states of India were suffered from premature deaths due to haemorragic stroke in 2015. People from Assam, West Bengal, Chhattisgarh, and the northeast state suffered from death for both males and females [23].

ICMR study (2021) showed that the Brain stroke risk ate highest in Cuttack in India. The study revealed that 187 people in every one lakh population and 96 stroke cases per 1 lakh population suffered from brain stroke in Cuttack. The risk factors which associated with stroke was hypertension in Cuttack and Kota, diabetes in Varanasi, and tobacco use in Cuttack and Thirunalveli [24].

Mohanty M, Sahu S, and Jena SK (2020) conducted a study on "A study on socio-clinical profile and associated risk factors of stroke patients admitted to the Neurology department of SCB medical college, Cuttack, Odisha". The aim of the study was to find the prevalence of types of strokes among the patients admitted in the neurology department of SCB medical college, to assess demographic profiles of patients and to find out the associated risk factors of strokes. The study was conducted in neurology I.P.D. of SCBMCH, Cuttack with 180 subjects. The data was collected by a Semi-structured schedule. Out of 180 patients 60% and 40% female. 41.2% completed up to primary school, 37% up to middle school, and 21.8% completed high school or above. According to modified B. G. Prasad scale-2018 (53.4%) belonged to upper middle class, upper class (35.5%), middle class (7.2%), and lower middle class (2.2%) and only 1.7% belonged to lower class. The study results also showed that 138 (76.7%) had ischemic stroke and 42 (23.3%) had haemorrhages. 32.2% were found to be n the age group of 60-69 years 29.4% in ≥70 years of age, 19.4% in 5 the 0-59-year age ground up, and 15.6% in the 40-49-year age group.

The risk factors were hypertension (63.3%), Diabetes mellitus 37%, and alcohol intake 53.9% [25].

In a systematic analysis of the Global Burden of Disease study (1990-2019) on "Global, regional and national burden of stroke and its risk factors" showed that in 2019 12.2 million incidents of stroke, 101 million prevalent of stroke cases and 6.55 million death from stroke. Among all the stroke cases incident of ischemic stroke 62.4%, 27.9% were intracerebral hemorrhagic and 9.7% were subarachnoid hemorrhagic stroke. The study also showed five leading risk factors of stroke. They were high systolic blood pressure in 79.6 million people, high body mass index in 34.9 million people, fasting plasma glucose in 28.9 million people, ambient particulate matter pollution in 28.9 million and smoking in 25.3 million people [26].

Ojha P, Basak S, and Aglave V (2013-2019) conducted a study on "Incidence of stroke in adults according to age, sex and subtypes in urban population" in Mumbai with the objective to identify the incidence of stroke stratified by age, sex, and stroke subtype. Among 1377 patients, 1246 were ischemic and 131 haemorragic. The result showed that the average age was 49.06 years and 53% were males. 50% of strokes occurred between 46-65 years of age, and 25% in over 65 years of age. 21% haemorragic and 16% ischemic occurred under 45 years of age. The study result showed that young females had a lesser risk of stroke than males but females above 65 years had a significantly greater risk of ischemic stroke (P Value < 0.005). The risk of intracerebral bleeding in males under 45 years was significantly more than that of females (P Value < 0.001) [27].

Kannan V, Justin C, Prashanth PRS, and Alexander N (2018) conducted a study on the "Clinical prevalence of stroke in tertiary hospitality in Southern India" in Government Rajaji Hospital and Madurai Medical College. The aim of the study was to review the prevalence of stroke in a tertiary care hospital in southern India. The study result shows that among 1168 stroke patients 779 males and 389 females. There were 848 ischaemic stroke patients (72.60%), and 320 haemorragic stroke patients (27.39%). Anterior circulation stroke prevalence was higher (88.27%) when compared to posterior circulation stroke. 498 patients (42.63%) belonged to the age group of 40 to 60 years [28].

Sankar Debasis, Halder Subrata, and Saha Bikram KR (2016) conducted a study on "A study of stroke patients with respect to their clinical and demographic profile and outcome" on Malda medical college, IPGME&R, Nadia district hospital. 501 patients of stroke were included this study. Detailed history, physical examination and relevant systemic examination including detailed examination of the neurological system were performed and necessary lab investigations were done. The result showed that among 501 stroke pati, ents 90 (18%) patients were of young and 236 (47.1%) of elderly (> 60 years). Among them 435 (86.8%) were hypertensive and 130 (25.9%) had H/O diabetes and 160(75.83%) had dyslipidemia [29].

Kalkonde YV, Sahane V, Deshmukh MD, Nila S, Mandava P, Bange A (2016) conducted a study on "High prevalence of stroke in Rural Gadchirolu, India". The study was conducted by house-to-house survey of 45,053 living population in 39 villages. Among them, 175 patients had a stroke, and the mean age was 60.9±14.7 years the crude prevalence rate of stroke was 388.43/100,000 population and was significantly higher among men than among women [30].

Stroke is the main cause of death. There were many people who are unknown about the risk factors of stroke. If the risk factors of stroke are identified there will be a hope to reduce the morbidity and mortality due to stroke. This type of study was less conducted in West Bengal. So the investigator feels the need to assess the risk factors of stroke among clients attending medicine OPD, BSMC&H, Bankura, and West Bengal.

Statement of the problem
Assessment of risk factors of stroke among clients attending medicine OPD, BSMC&H, Bankura, and West Bengal.

Purpose of the study
The purpose of the study was to identify the risk factors of stroke among clients attending the medicine OPD.

Objectives of the study
1. To assess the risk factors of stroke among clients attending medicine OPD, BSMC&H.
2. To find out the association between the risk factors of stroke with the selected demographic variables.

Delimitations of the study
The study was delimited to only a single setting, medicine OPD, BSMC&H, Bankura.

Methodology
Research approach: Quantitative approach.

Research design: Descriptive survey research design.

Variables: Research variables-Risk factors of stroke.
Risk factors are blood pressure, cardiac disease, diabetes mellitus, hyperlipidemia, obesity, habit of taking extra salt, habit of smoking, habit of alcohol consumption, consumption of fatty foods, consumption of oily food, regular exercise, sleep disturbance, and stress.

Demographic variable: Age, sex, marital status, educational status, occupation, socioeconomic class, history of medical illness, duration of medical illness, treatment of medical illness, history of taking any medicine, family history, and any blood investigation done.

Settings
For Pilot study: Medicine OPD, Midnapore Medical College & Hospital, Paschim Medinipur, West Bengal.
For Final study: Medicine OPD, BSMC&H, Bankura, West Bengal.

Population: Clients attending medicine OPD in West Bengal.

Sample: Clients attending medicine OPD, BSMC&H, Bankura, West Bengal.

Sample size: 180 Sample criteria.

Inclusion criteria
1. Both male and female clients attending medicine OPD, BSMC&H, Bankura
2. 40 years and above age.
3. Clients willing to participate in the study.

Exclusion criteria
1. Diagnosed CVA.
2. Clients with acute physical illness.
3. Clients attending first time at medicine OPD.

Sampling techniques: Data was collected by the Non-probability convenience sampling technique.

Table 1: Data collection of the tools & techniques.

Tool No	Variables to be measured	Tool	Techniques
I.	Demographic variables	Semi-structured interview schedule.	Interviewing.
II.	Risk factors of stroke	IIA. Structured interview schedule.	Interviewing
		IIB. Bio physiological measurement.	Physical Assessment.
		IIC. Perceived stress scale	Interviewing.

Pretesting of the tool: Pretesting of the tool was done to check the clarity of the item, feasibility and tractability of the item. The tool is administered to ten (10) patients attending medicine OPD of BSMC & H, Bankura.

Reliability of tool: The reliability of the tool was done on 20 clients attending the medicine OPD, BSMC&H, Bankura.

Table 2: Reliability of the tools.

Tool no	Method	Reliability
Tool II A	Cronbach's Alpha	0.79
Tool II B	Interrater reliability.	1
Tool IIC	Cronbach's Alpha	0.92

Data Analysis and Discussion
Data presented in Table 3 depicted that a maximum (41.11%) of clients belongs to 40-50 years of age and only 7.78% belongs to 71-80 years of age., (55%) of clients were male and 45% were female, most of the clients (91.67%) were married and only 3.33% were widow, maximum (49.44%) were homemaker and only 1.67% were engaged to service, (33.89%) were completed upto the primary level of education and only 1.11% were completed upto the higher secondary level of education., maximum (46.67%) clients belonged to lower socioeconomic class and 10% were belongs to middle socioeconomic class.

Table 3: Distribution of study subjects according to age, sex, marital status, Occupation, Educational status, and socio-economic class of clients attending medicine OPD.

Age(in years)		
40-50	74	41.11
51-60	63	35.00
61-70	29	16.11
71-80	14	7.78
Sex		
Male	99	55.00
Female	81	45.00
Married status		
Unmarried	Nil	0.00
Married	165	91.67
Widow	9	5.00
Widower.	6	3.33
Divorced	Nil	0.00
Separated	Nil	0.00
Occupation		
Daily labour.	58	32.22
Service.	3	01.67
Business.	26	14.45
Homemaker	89	49.44
Unemployed	4	2.22
Educational status		
Illiterate	30	16.67
No formal education but able to sign.	34	18.89
Primary	61	33.89
Secondary	44	24.44
Higher Secondary	2	01.11
Graduate & above	9	5.00
Socio economical class		
1. (Upper class)	Nil	0.00
2. (Upper middle class)	Nil	0.00
3. (Middle class)	18	10.00
4. (Lower middle class)	78	43.33
5. (Lower class)	84	46.67

Table 4: Distribution of study subjects according to history of medical illness, duration of medical illness, treatment of medical illness, history of taking any medicine, family history of clients attending medicine OPD

Variables	N	Frequency	Percentage (%)
History of medical illness	146	41	28.08
Diabetes Hypertension		61	41.78
Kidney disease		30	20.55
Heart disease		13	8.90
TIA		**01**	**0.69**
Duration of medical illness	**180**		
< 1 year		52	28.89
1-5 year		103	57.22
6-10 year		17	9.44
11-15 year		08	4.45
Treatment of medical illness:			
Regular		125	69.44
Irregular		55	30.56
History of taking any medicine	190		
Hormone therapy		41	21.58
Corticosteroids		8	4.21
Oral contraceptives		10	5.26
Long-term use of NSAID.		Nil	0.00
Antidiabetics		34	17.89
Antihypertensive		61	32.11
Antilipidemic Antithrombotic		36	18.95
Family history	79	Nil	0.00
Stroke		13	16.46.
Diabetes		20	25.32
Hypertension		32	40.50
Heart disease		14	17.72

All data are exhaustive, but not mutually exclusive.

The respondent dent had multiple responses
Data presented in Table 4 showed that maximum (41.78%) of clients had a history of hypertension and only 0.69% had TIA, majority (57.22%) of client's duration of illness was 1-5 years, and only 4.45% were11-15 years., majority (69.44%)belong to belong to regular treatment, 30.56% were belongs to irregular, maximum (32.11%) of clients taking antihypertensive medicine and 4.21% taking coa rticosteroid., maximum (40.50%) of clients had a family history of hypertension, 16.46% had a stroke., majority (58.33%) of clients had blood investigation report and 41.67% had no report.

Table 5: Mean, median and standard deviation of risk factors of stroke

Variables	Mean	Median	Standard DeThe total
Total score of risk factors assessment score	12.93	13	3.21

Maximum score: 30
Minimum score: 0

Data Table scented in Table 5 showed that calculated the mean what the s 12.93, the median 13 and the standard deviation is 3.21 of the total risk factors assessment score.

Table 6: Distribution of study subjects according to the risk of stroke

Risk of Stroke	Range of score	Frequency	Percentages (%)
Low risk	< 9.72 (< Mean - 1SD)	27	15.00
Moderate risk	9.72 to 16.14 (Mean ± 1SD)	130	72.22
High risk	> 16.14 (>Mean +1SD)	23	12.78

Maximum score: 30
Minimum Table: 0

Data presented in Table 6 depicted that belong (72.22%) of clients belong to moderate risk and 12.78% belongs to high risk of stroke.

Table 7: Distribution of study subjects according to BMI, pulse rate of clients

Bio physiological measurements	Frequency	Percentages (%)
BMI		
Grade III severe chronic energy deficiency	Nil	0.00
Grade II moderate chronic energy deficiency	Nil	0.00
Grade I mild chronic energy deficiency.	16	8.89
Normal	92	51.11
Preobese	60	33.33
Obese grade I	12	6.67
Obese grade II	Nil	0.00
Obese grade III	Nil	0.00
Blood pressure		
Normal with medicine	34	18.89 (42.22)
Normal without medicine	76	14.44
Prehypertension with medicine	26	12.22
Prehypertension without medicine	22	5.56
Hypertension stage 1 with medicine	10	6.67 (0.00)
Hypertension stage 1 without medicine	12	0.00
Hypertension stage 2 with medicine	Nil	
Hypertension stage 2 without medicine	Nil	
Blood glucose level (random)		
Normal with medicine	34	18.89
Normal without medicine	131	72.78
Diabetes mellitus with medicine	7	3.89

Table at presented in Table 7 depicted that the majority (51.11%) of clients had normal BMI, 6.67% belongs to obese grade 1, maximum (42.22%) clients with normal blood pressure without medicine, and 5.56% with hypertension stage 1 with medicine., majority (72.78%) clients with normal blood sugar level without medicine and 3.89% clients with diabetes mellitus with medicine

Table 8: Mean, median and standard deviation of level of stress

Variables	Mean	Median	Standard deviation
Total score of level of stress	20.96	21	3.07

Maximum score: 40
Minimum score: 0

Data presented in Table 8 showed that calculated meat he n was 20.96, median 21 and standard the deviation 3.07 of the total risk factors assessment score.

Table 9: Distribution of study subjects according to the level of stress

Level of stress	Range of score	Frequency	Percentages (%)
High	27-40	11	6.11
Moderate	14-26	169	93.89
Low	0-13	Nil	0.00

Maximum score: 40
Minimum score: 0

Data in above table e showed that most (93.89%) of clients had moderate stress, 6.11% had and high stress.

Discussion

Discussion related to demographic characteristics

The present study was supported by an epidemiological study conducted by Dr. Manna Nirmalaya, Dr. Mondal Tanushree, Dr. Abhinesh V, Dr. Mondal Soumitra, Dr. Banerjee Shibashish, Dr. Das Debasis (2021) on selected risk factors of stroke among adults living in a slum of Kolkata among 200 subjects. The analysis showed that 64% were male, 88% were married, 50% were diagnosed hyper ten and side, and 57.69% had a duration of hypertension for more than 1 year [31].

The present study was fully supported by the study conducted by Dr. Mubashshir Mohammed, Dr. Hoda Arif, Dr. Chandrakar Santwana (2020) on modifiable risk factors of stroke in Navi Mumbai among 92 participants. The analysis showed that 55% were male [32].

The present is study also partially supported by another study conducted by Mondal Md Badrul.

Alam, Hasan A T M Hasibul, Khan Nusrat, Mohammad Quazi Deen (201the 8) on prevalence and risk ractors of Stroke in Bangladesh. The study analysis showed that 86.4% wand ewer married, 79.2% had a history of hypertension [33].

The present study was partially supported by another study conducted by Pravakar S, Suravarapu S, Mathai D, Renangi S, and Challa S (2017) on risk factor Telangana in rural Telangana state. The study showed that 76.2% were less than 55 years of age [35].

The present study also partially sup the ported by a study on prevalence of stroke and its risk factors among the geriatric population in the rural field practice area of Mandya Institute of Medical Sciences, Mandya conducted by MG Sujatha (2017). The study showed that 38.40 % were homemakers, 36.30% were hypertensive [36].

Discussion related to risk factors of stroke

The study was partially supported by another study conducted by Li, MM Rui-Cen, MD WangDong (2018) on the risk of stroke and associated risk factors in the health examination population. The study was showed that 37.58% had moderate risk of stroke [34].

The present study was also supported by another study conducted by Dr. Mubashshir Mohammed, Dr. Hoda Arif, Dr. Chandrakar Santwana (2020) on modifiable risk factors of stroke among 92 participants. The analysis showed that 68% had a normal BMI [32].

The present study was partially supported by another study conducted by Pravakar S, Suravarapu S, Mathai D, Renangi S, and Challa S (2017) on risk factors of stroke in rural Telangana state. The study result showed that 49.5% had normal BMI, 61.6% of patients are normotensive, and 51.2% were nondiabetic [35].

The present study also partially supported by a study on prevalence of stroke and its risk factors among the geriatric population in the rural field practice area of Mandya Institute of Medical Sciences, Mandya conducted by MG Sujatha (2017). The study results showed that 57.60% had a normal BMI [36].

The present study was supported by a an epidemiological study conducted by Dr. Manna Nirmalaya, Dr. Mondal Tanushree, Dr. Abhinesh V, Dr. Mondal Soumitra, Dr. Banerjee Shibashish, Dr. Das Debasis (2021) on selected risk factors of stroke among adults living in a slum of Kolkata among 200 subjects. The study showed that 72.03%

have normal blood glucose levels [31].

The present study was partially supported by another study by Jacob George P, and Kulkarni Muralidhar M (2013) on risk factors of stroke in coastal villages of Uttara Kanada district. 61.3% had a moderate level of stress among 45 subjects [38].

Discussion related to the association between the risk factors of stroke and demographic variables

The present study was supported by a an epidemiological study conducted by Dr. Manna Nirmalaya, Dr. Mondal Tanushree, Dr. Abhinesh V, Dr. Mondal Soumitra, Dr. Banerjee Shibashish, Dr. Das Debasis (2021) on selected risk factors of stroke among adults living in a slum of Kolkata among 200 subjects. The study showed that increasing age was significantly associated with hypertension [31].

The present study also supported by Nakibuuka J, Sajatovic M, Nankabirwa J, *et al.* (2013) on Stroke risk factors differs between rural and urban communities in the Wakiso district in Uganda. The study results showed that age, history of medical illness, and family history were associated with hypertension [37].

Conclusion

From the study findings, it can be concluded that assessment of risk factors of stroke is an important way to reduce the burden of stroke. Hypertension and increased age are the major risk factors for stroke. The association was found between the age, history of medical illness, family history and hypertension. By assessing the risk factors the researcher can control the occurrence of stroke.

Further study also partially and fully supported with the present study.

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