ORIGINAL ARTICLE

Health-seeking behaviour of stroke patients in a rural area of Bangladesh

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ABSTRACT

Background: Improper health-seeking behaviours (HSB) have been correlated with detrimental health outcomes, elevated rates of illness and mortality. The study aimed to investigate how stroke patients in a rural community of Bangladesh seek health care.

Methods: A cross-sectional survey was conducted in the Raiganj sub-district of Sirajganj district from January to June 2016, using a validated screening tool to identify stroke patients at the household level. Neurologists confirmed the diagnosis after examining all suspected cases. Out of the 419 suspected cases identified during the screening process, 186 cases were officially reported after undergoing a confirmed diagnosis. Information on health-seeking behaviour was collected through face-to-face interviews with patients or their attendants.

Results: After experiencing a stroke, approximately 35% of patients received treatment from unregistered care providers and over 40% received treatment outside of a hospital setting. Males were significantly more likely than females to receive treatment from registered physicians or hospitals ($P<.05$ and $P<.01$). A significantly higher proportion of educated individuals sought healthcare from registered physicians or hospitals ($P<.05$). Although better health-seeking behaviour was observed among higher-income groups, the findings were not statistically significant. Around 67% of patients were found to be hypertensive, with about one-third of them not taking any medication for their elevated blood pressure. Approximately 37% of patients had elevated blood glucose levels but only 22% were taking medication.

Conclusion: A notable proportion of stroke patients in rural Bangladesh sought treatment from unqualified service providers. Health-seeking behaviour was associated with factors such as gender, education, and economic condition.

Keywords: stroke, health-seeking behaviour, risk factors, rural community, Bangladesh

INTRODUCTION

Care-seeking behaviour refers to the actions and behaviours undertaken by an individual to promote their optimal wellness, recovery, and rehabilitation.[1] It may vary depending on the disease or the specific individual or community. The preferred care-seeking behaviour for an individual would be to seek help from a medically trained doctor in a formally recognized healthcare centre as the first and foremost response to an illness episode.[2] The health-seeking behaviour (HSB) of a person is typically influenced by socio-cultural factors such as social networks, gender, economic status, beliefs, and household decision-making processes.[3] Inappropriate HSB have been linked to negative health outcomes, increased rates of illness and death, and inferior health statistics.[4]

Globally, stroke complications are a significant health concern, with up to 50% of strokes resulting in death, and survivors often experiencing disabilities.[5] Survivors are often concerned about their potential for recovery, the ability to return home, and long-term independence from caregivers.[6] Stroke not only leads to hospitalization and death but also reduces the quality of life for patients and caregivers.[7] The long-term risk of

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HIGHLIGHTS

1. Gender, education, and income levels influence health-seeking behavior of stroke patients in rural Bangladesh.
2. In rural Bangladesh, many stroke patients choose unregistered physicians, and a large percentage avoid seeking hospital-based treatment.
3. Stroke patients in rural Bangladesh lack awareness of stroke risk factors and show poor adherence to medication for hypertension and diabetes.
4. Male stroke patients in Bangladesh show a higher tendency to seek healthcare from registered physicians or hospitals compared to females.

mortality after stroke is nearly twice as high as for those without stroke.[8] The psychological and physical well-being of patients and their families is significantly affected by stroke, particularly among the elderly, as it is a leading cause of disability.[8] The consequences can be reduced by providing proper care; for that, it is necessary to seek care from a qualified healthcare provider.

When seeking healthcare, most people choose and seek care based on the symptoms or signs of a disease they experience. The behaviour of individuals involves a process of perceiving and judging symptoms after experiencing physical discomfort.[9] However, in Bangladesh, there is inadequate information available on the health-seeking behaviour of stroke patients.[10] Therefore, this study was designed to explore the health -seeking behaviour of individuals who have experienced a stroke in a rural community of Bangladesh.

METHODS

A community-based household survey was conducted in Raiganj Upazila (sub-district) of Sirajganj district in Bangladesh from January to June 2016. The total population of the Upazila is 3,17,666, where 1,58,604 are male and 1,59,062 are female. The average literacy rate is 38.1% (41.1% for males and 35.2% for females).

The selection of this Upazila for the study was based on the fact that the Centre for Injury Prevention and Research Bangladesh (CIPRB) has been conducting a health and demographic surveillance system in the three unions of this sub-district since 2006. The surveillance system covers a total of 31,971 households and a population of 1,47,072.

The study included the entire population of 15 years and above in this surveillance area. Suspected stroke patients were identified at the household level using the Verifying Stroke-Free Status (QVSFS) screening tool. QVSFS is a diagnostic instrument used to assess an individual's stroke-free status. It is designed to identify individuals who have not experienced a stroke event. The QVSFS screening tool typically consists of a set of questions or criteria that are used to gather relevant information about an individual's medical history, risk factors, and potential symptoms associated with stroke. The tool has a high sensitivity (0.97) and negative predictive value (0.96).[12] Fifteen data collectors and five supervisors were trained on QVSFS, and 94,965 individuals were screened from 25,964 households, resulting in the identification of 419 suspected cases.

All suspected patients were invited to a designated center for confirmatory diagnosis. A team of four neurologists conducted the confirmatory diagnosis procedure, considering signs, symptoms, and physical examination. Investigation reports such as computed tomography (CT) scans and magnetic resonance imaging (MRI) were also considered when available and brought by the patients. The final diagnosis officially confirmed 186 cases of stroke. Neurologists involved in this study were academic faculty members at the National Institute of Neuroscience in Bangladesh. They obtained their academic degrees from Bangladesh College of Physicians and Surgeons.

A history of health-seeking behavior of the confirmed cases was collected and recorded through interviews with patients or their attendants. The interviews were conducted in a separate comfortable room after the completion of diagnosis and management provided by the neurologists. A trained interveiwer conducted face-to-face interview with a structured instrument. Socio-demographic information including age, sex, marital status, occupation, and education for each patient were collected from the database of the CIPRB surveillance system.

The study assessed the outcome based on the utilization of treatment from qualified or non-qualified service providers. Additionally, it examined the treatment received from hospital or non-hospital settings. Furthermore, the study also measured whether patients were adhering to the recommended treatment for their specific risk factors associated with the disease.

Descriptive analysis was conducted to provide an overview of the population based on age, sex, and level of education. The service providers were categorized into qualified and unqualified, as well as hospital and non-hospital settings. Descriptive analysis was also performed to illustrate the distribution of patients based on their type of service provider, presented as frequency and percentage. Bivariate analysis was conducted to identify any relationships between the dependent and independent variables. Gender, education, and income was considered as independent variable, while the choice of health provider was considered as the dependent variable. Education was categorized into two groups: literate and illiterate. Income was categorized as either BDT 5000 or less, or more than BDT 5000 per month. Sex was classified into male and female categories. The statistical significance of these relationships was assessed using Chi-square test. Variable construction and estimations were done using Statistical Package for Social Sciences (SPSS) version 24.

TABLE 1 Distribution of the stroke patient by age, sex, occupation, income and education (n=186)

Variables	Frequency	Percentage
Age (years)		
<25	1	0.5
25-44	20	10.8
45-54	40	21.5
55-64	49	26.3
65-79	63	33.9
80 yrs +	13	7.0
Sex		
Male	112	60.2
Female	74	39.8
Occupation		
Government job	4	2.2
Private job	4	2.2
Entertainer	9	4.8
Unemployed	4	2.2
Housewife	66	35.5
Retired	62	33.3
Others	37	19.9
Marital status		
Married	180	96.8
Widow	6	3.2
Monthly income		
BDT 5000 or less	152	81.7
BDT > 5000	34	18.3
Literacy		
Illiterate	94	50.5
Literate	92	49.5

RESULTS

A total of 94,965 individuals aged 15 years and above from 25,964 households underwent screening. Over two -thirds of the population fell into the age group of 15 to 44 years. Their mean age was 60.2 years (standard deviation, 13.1 years). Roughly, 37% of the population was unable to read and write. Males predominantly worked in agriculture, while females were mainly engaged in housekeeping. Among the suspected cases, neurologists confirmed 186 individuals as having suffered a stroke out of a total of 419 cases. Information on health-seeking behaviour was investigated in the group of 186 diagnosed stroke cases. Of these confirmed stroke patients, approximately 60% were male and 40% were female. More than two-thirds of the patients were aged 55 years and above. Additionally, over one-third of the patients were retired **(TABLE 1)**.

TABLE 2 Distribution of patients by sources of services received (n=186)

Received service provider	Frequency	Percentage
MBBS	107	57.5
Neurologist	14	7.5
Non-registered	65	34.9
Hospital	110	59.1
Not in hospital	76	40.9

Following a stroke, approximately 35% of patients sought treatment from a non-registered physician such as village doctors, health assistants, and *kabirajs* (traditional healer), who do not possess registration

TABLE 3 Care-seeking pattern by sex, education and income

Factors	Treatment at hospital (%)	*P*	Registered physician (%)	*P*
Sex				
Male	67.0	0.008	71.4	0.03
Female	47.3		55.4	
Education				
Illiterate	51.5	0.02	57.6	0.02
Literate	67.8		73.6	
Income				
BDT ≤5000	55.9	0.06	62.5	0.12
BDT >5000	73.5		76.5	

TABLE 4 Hypertension and diabetes after stroke

Event	Frequency	Percentage
Taking medication for hypertension (n=115)	66	70.4
Blood Pressure raised at present (n=171)	115	67.3
Taking diabetes medication (n=63)	14	22.2
Blood glucose raised on examination (n=171)	63	36.8

from Bangladesh Medical and Dental Council, while about 58% received treatment from a registered general physician (MBBS), and approximately 8% received treatment from a neurologist. Additionally, over 40% of the patients did not seek treatment at any hospital **(TABLE 2)**.

Health-seeking behaviour was found to be better among males, those with higher education levels, and higher-income groups. Compared to females, a significantly higher proportion of males sought healthcare from a registered physician or a hospital ($P<.05$ and $P<.01$). Similarly, compared to illiterate individuals, a significantly higher proportion of literate individuals sought healthcare from a registered physician or a hospital ($P<.02$) **(TABLE 3)**.

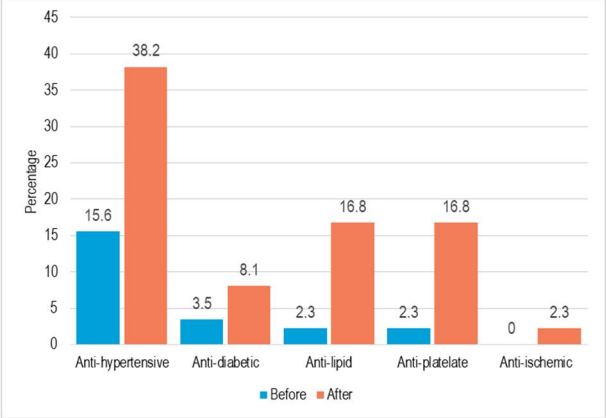

FIGURE 1 Percentage distribution of patients by medication practice (n=173)

During the clinical examination, it was observed that approximately 67% of the patients had hypertension. Of these, around one-third received no medication for their elevated blood pressure. Additionally, about 37% of the patients had raised blood glucose levels during the examination but only around 22% of them were taking medication for their condition **(TABLE 4)**.

Medication history was obtained from 173 patients before and after a stroke. It was observed that

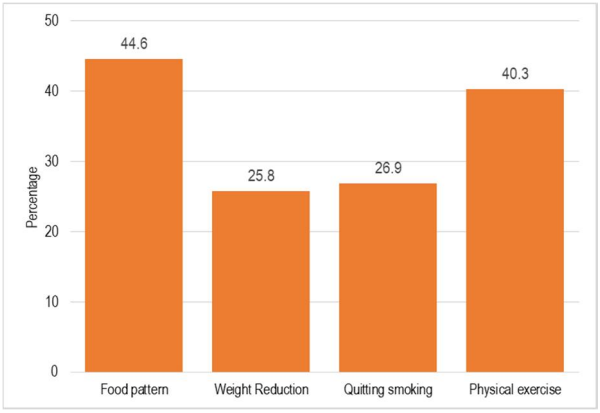

FIGURE 2 Percentage distribution of patients by advice provided by physician following a stroke event

approximately 16% of the patients were taking antihypertensive medication before the stroke, which increased to about 38% after the stroke. About 3.5% of the patients took antidiabetic medication before the stroke, which increased to 8.1% after the incident. Around 2% of the patients were taking anti-lipid and anti-platelet medication prior to the stroke, which increased to about 17% after the stroke. None of the patients were taking any anti-ischemic medication before the stroke, but this increased to 2.3% after the occurrence of the stroke **(FIGURE 1)**.

The study found that around 46% of the patients were given dietary advice by their physicians, while approximately 40% were advised to exercise regularly. Furthermore, 27% of the patients reported being advised to quit smoking, and 26% mentioned receiving advice to lose weight **(FIGURE 2)**.

DISCUSSION

Adopting appropriate health-seeking behaviour is of paramount importance as it plays a vital role in facilitating early diagnosis and effective treatment, ultimately resulting in decreased complications associated with the disease.[11] This study focuses on analysing the health-seeking behaviour of stroke patients within a rural community of Bangladesh.

In this study, it was observed that a significant proportion, exceeding one-third of stroke patients opted for treatment from unregistered physicians, while more than 40% did not seek any hospital-based treatment. Conversely, a separate hospital-based study conducted

in Bangladesh demonstrated a slightly improved health-seeking behaviour among stroke patients.[10] Nevertheless, this discrepancy can be attributed to the fact that our study primarily took place in a rural setting. Another study, specifically focusing on burn patients in a rural area, revealed that approximately 60% of patients sought healthcare from unqualified healthcare providers.[12] The inadequate health-seeking behaviour observed in rural areas can be attributed to several factors including a lack of understanding regarding the consequences of diseases, limited knowledge about available healthcare facilities, and limited accessibility to healthcare services.[5, 10] When comparing Nepal to Bangladesh, it was observed that seeking healthcare for stroke was more favourable in Bangladesh. This contrast can be attributed to the fact that many stroke patients in rural areas of Nepal often choose traditional healers over seeking appropriate medical treatment.[13]

The choice of healthcare provider following a stroke incident was found to be influenced by factors such as sex, education, and income. Notably, there was a distinct disparity in health-seeking behavior between male and female patients. A significantly higher proportion of males sought healthcare from registered physicians or hospitals compared to females. This observed pattern of health-seeking behavior among the sexes aligns with findings from other studies conducted in Bangladesh.[14] However, in the context of children with burn injuries in Bangladesh, no significant association was discovered between sex and the pattern of health-seeking behavior.[12] The health-seeking behaviour of stroke patients was influenced by education and income levels. A higher proportion of educated individuals (P<.02) and those with higher income (P<.06) were found to seek healthcare from registered physicians or hospitals. However, the association between income and health-seeking behaviour did not reach statistical significance. These findings align with other studies conducted in Bangladesh which also identified both income and education as contributory factors in determining health-seeking behavior.[14]

The study revealed that stroke patients in rural areas of Bangladesh exhibited insufficient practice and awareness regarding stroke risk factors. This observation aligns with a similar trend identified in rural communities in Pakistan.[17] This study revealed that over two-thirds of the patients had hypertension, yet approximately one-third of them were not receiving any medication for its management. Furthermore, around 37% of the patients were found to have diabetes, but only about one-fifth of them were actively taking medication to control their high blood glucose levels. Similar practices were observed among patients with hypertension and diabetes in India.[18]

One limitation of this study is that it predominantly focused on a rural population at the subdistrict level which may not accurately reflect the health-seeking behaviour of the urban population in Bangladesh, hence lacking generalization. However, the strength of the study lies in its inclusion of the entire population aged 15 years and above in a specific geographical area, who were under a health and demographic surveillance system. Additionally, the confirmatory diagnosis of stroke was made by senior neurologists from the National Institute of Neurosciences and Hospital, Bangladesh.

Conclusion

A significant number of individuals in rural Bangladesh who suffer from strokes seek treatment from unqualified healthcare providers. Several factors, including gender, education, and economic status of the family, affect the health-seeking behavior of these patients. Furthermore, a large number of patients lack sufficient awareness about the risk factors associated with their condition and fail to adhere to appropriate medication protocols.

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Author Contributions

Conception and design: SRM, MBA, UKS, QDM. Acquisition, analysis and interpretation of data: SRM, MBA, UKS. Manuscript drafting and revising it critically: MBA, UKS, SRM, AHMEH, MAH, AKMFR, KD, QDM. Approval of the final version of the manuscript: MBA, UKS, SRM, AHMEH, MAH, AKMFR, KD, QDM. Guarantor accuracy and integrity of the work: SRM, MBA, UKS.

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Conflict of Interest

The views expressed in this article are solely the responsibility of the authors and do not necessarily reflect the views, decisions, or policies of the institutions with which they are affiliated.

Ethical Approval

Verbal consent was obtained from both the respondents and their guardians in cases where the patient's age was less than 18 years. In situations where the patient was unable to provide consent, consent was sought from their spouse, parent, or guardian who was present during the examination and interview. The study received ethical approval from the Ethical Review Committee of the Centre for Injury Prevention and Research Bangladesh (CIPRB) (Memo number: CIPRB/ERC/2016/04).

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