



## An Assessment of the Physical Status in Post-Stroke Patients

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Received: 09 June 2021

Revised: 25 July 2021

Accepted: 04 August 2021

Published: 21 August 2021

### Abstract

**Background:** Stroke is a major cause of death and other complications worldwide. Stroke rehabilitation is an essential recovery option after stroke and should start as early as possible to avoid potential complications. It has been well documented that stroke is a major cause of death and functional impairment worldwide. **Aim:** To assess the physical status in post-stroke patients in Bangladesh. **Methods:** This cross-sectional analytic study was conducted in Bangabandhu Sheikh Mujib Medical University Hospital during November 2018 to April 2019. A total of 150 patients were included for the study. Non-probability convenient sampling was used. Collected data were analyzed by computer technology SPSS version 22.0. Permission from ethical review committee of Gono Bishwabidyalay was taken. **Results:** Average age of the study subjects was 53.43±12.87 years. Majority of the respondents (42%) belonged to 51-65 years followed by 28% from 36-50 years, 18% from 66-85 years and 12% from 21-35 years. Male was quite double (65.30%) than female (34.70%). Average monthly family income among was 34273.33±18821.98 BDT. Three-fourth of the respondents (76%) suffered from hemorrhagic stroke and one-fourth (24%) ischemic stroke. About 97.30% of the patients suffered from hemiplegia. Active assisted exercise as means of rehabilitation was prominent (88%) and passive exercise was provided among 12% patients. **Conclusions:** Disability is common after stroke. Reducing disability through rehabilitation programme is demanded. Physiotherapy, using a mix of components from different approaches, is effective for the recovery of function and mobility after stroke.

**Keywords:-** Post-Stroke, Physical, Patients, Rehabilitation, Complications.

## INTRODUCTION

Stroke is a major cause of death and other complications worldwide. Stroke rehabilitation

is an essential recovery option after stroke and should start as early as possible to avoid potential complications.<sup>[1]</sup> It has been well

documented that stroke is a major cause of death and functional impairment worldwide.<sup>[2]</sup> Thus, stroke stands out among the most basic social and financial medical issues.<sup>[3]</sup> The stroke rehabilitation program remains an essential element of recovery after stroke and should be started as early as possible to avoid potential complications and death. As indicated by the ICF model developed by the World Health Organization (WHO) in 2001, stroke rehabilitation can be described as a health procedure that “aims to facilitate people with health state experiencing or likely to experience disability to attain optimal functioning in interaction with the environment”.<sup>[4]</sup> Generally, it is an umbrella for several services to help patients with stroke in improving their physical, psychosocial and vocational potential, with consideration of the physiologic and environmental limitations. However, various advances have recently been made in the prevention, treatment, and rehabilitation of stroke worldwide. These advances have elicited a significant decrease in the population-based death rate over the past decade.<sup>[5]</sup> A stroke, or cerebrovascular accident (CVA), is the rapid loss of brain function(s) due to disturbance in the blood supply to the brain. It is the second leading cause of death worldwide and the leading cause of long-term disability.<sup>[6]</sup> The global epidemic of stroke is not only the public health concern in high-income countries. Nearly 85% of all stroke deaths are recorded in low- and middle-income countries, which results in 87% of total losses caused by stroke in terms of DALYs, measured, globally in 72 million per year.<sup>[7]</sup> Stroke patients are at highest risk of death in the first weeks after the event and between 20% to 50% die within the first month depending on type, severity, age, co-morbidity

and effectiveness of treatment of complications. Patients who survive may be left with no disability or with mild, moderate or severe disability. Stroke is widely recognized as a major cause of disability among adults and is the most common cause of dependence in activities of daily living (ADLs) among the elderly. Approximately 90% of stroke survivors have permanent neurological deficits. Apart from having a deep impact on the survivors themselves, post-stroke depression also affects family and friends.<sup>[8]</sup> However, patients with a history of stroke are at risk of a subsequent event of around 10% in the first year and 5% per year thereafter.<sup>[9]</sup>

### Objectives

- General objective:
  - To assess the physical status among the post-stroke patients
- Specific Objectives:
  - To assess socio-demographic characteristics of the study subjects.
  - To find out pattern of stroke.
  - To see physical status of stroke patient.
  - To assess factors associated with physical status of stroke patient.

### **MATERIAL AND METHODS**

This cross-sectional analytic study was conducted in Bangabandhu Sheikh Mujib Medical University Hospital during November 2018 to April 2019. A total of 150 patients were included for the study according to following inclusion and exclusion criteria. Non-probability convenient sampling was used. Data were collected through questionnaire by personal interview. Face to face, interview was conducted. Health status was determined by

taking history and conducting physical examination. Medical records were checked. Collected data were analyzed by computer technology SPSS version 22.0. Descriptive statistics (mean, SD, frequency, percentage) and inferential statistics (Chi-square) were used. Permission from ethical review committee of Gono Bishwabidyalay was taken.

- **Inclusion Criteria**

- Those who were willing to participate

- **Exclusion Criteria**

- Those who were not willing to participate

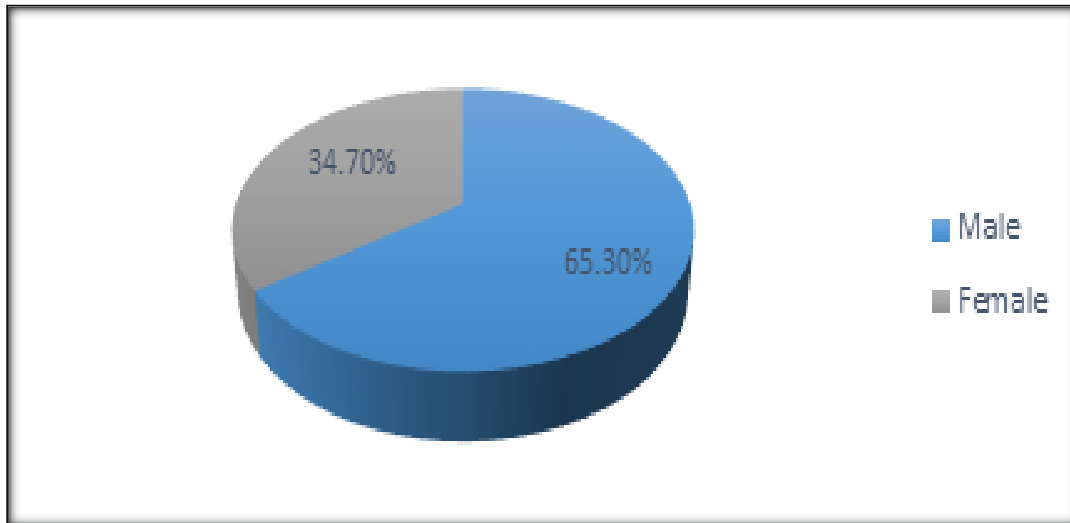
## RESULTS

Average age of the study subjects was  $53.43 \pm 12.87$  years. Majority of the respondents (42%) belonged to 51-65 years followed by 28% from 36-50 years, 18% from 66-85 years and 12% from 21-35 years [Table 1]. Male was quite double (65.30%) than female (34.70%) [Figure 1]. Average monthly family income among was  $34273.33 \pm 18821.98$  BDT. More than half of

the respondents (58.7%) came from upper middle-income (\$299.68 - \$926.25 or BDT 21271-65761) group followed by 32.7% from lower middle-income (\$75.5 - \$299.58 or BDT 5361-21270) and 6.7% from upper income group [Table 2]. Three-fourth of the respondents (76%) suffered from hemorrhagic stroke and one-fourth (24%) ischemic stroke [Figure 2]. About 97.30% of the patients suffered from hemiplegia [Figure 3]. About 96.70% patients received both medication and rehabilitation [Figure 4]. Almost all of the patients were receiving physiotherapy [Figure 5]. Active assisted exercise as means of rehabilitation was prominent (88%) and passive exercise was provided among 12% patients [Figure 6]. Statistical significant association was found between gender and type of stroke ( $p=0.001 < 0.05$ ) [Table 3]. Statistical significant association was found between family type and type of stroke ( $p=0.004 < 0.05$ ) [Table 4]. Statistical significant association was found between income group and type of stroke ( $p=0.001 < 0.05$ ) [Table 5].

**Table 1:** Age group of the study subjects (n=150).

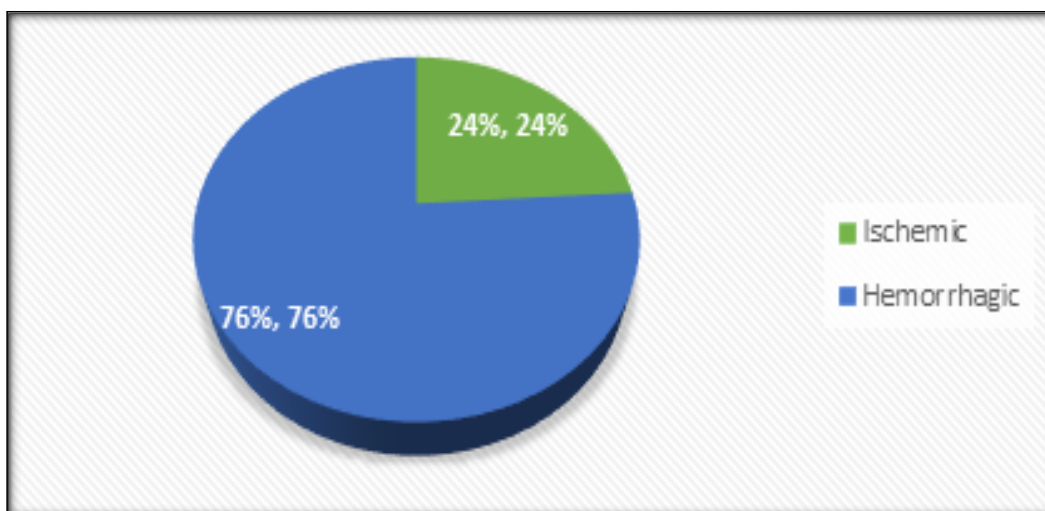
Age in year	Frequency	Percentage
Mean±SD	$53.43 \pm 12.87$	
21-35	18	12
36-50	42	28
51-65	63	42
66-85	27	18
Total	150	100.0



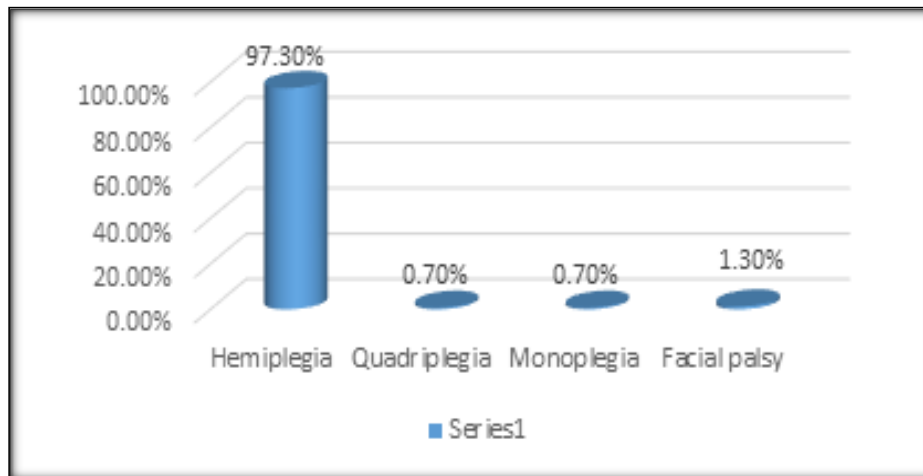
**Figure 1:** Gender distribution (n=150)

**Table 2:** Monthly family income of the study subjects (n=150)

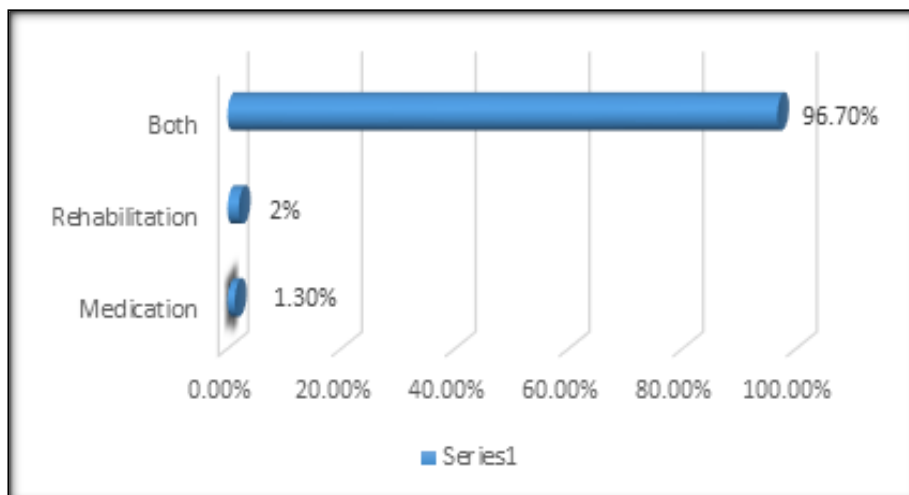
Family income	Frequency	Percentage
Mean±SD	34273.33±18821.98	
Low-income (≤\$75.41 or BDT ≤5360)	3	2.0
Lower middle-income (\$75.5 - \$299.58 or BDT 5361-21270)	49	32.7
Upper middle-income (\$299.68 - \$926.25 or BDT 21271-65761)	88	58.7
Upper income (>\$926.25 or BDT 65761)	10	6.7
Total	150	100



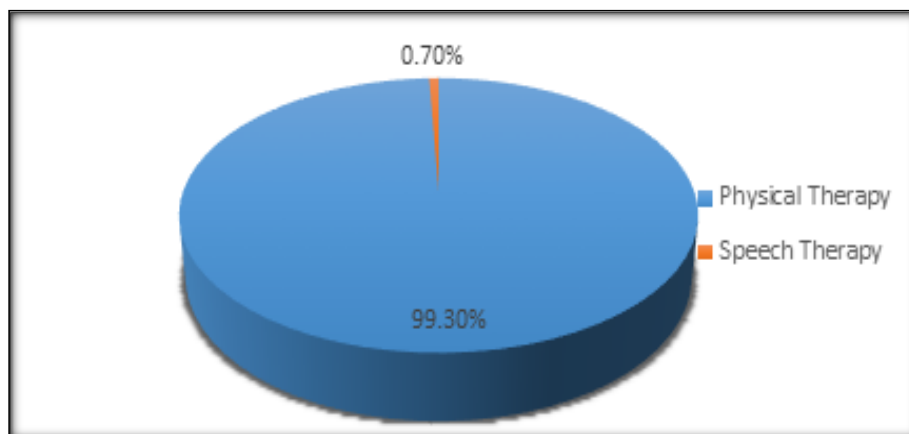
**Figure 2:** Type of stroke (n=150)



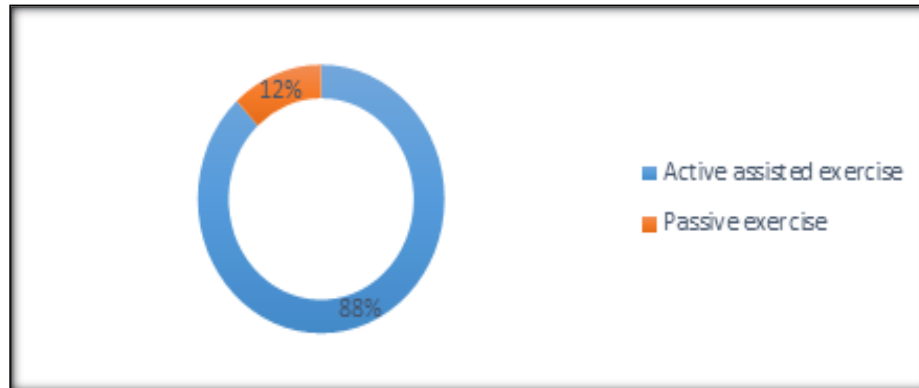
**Figure 3:** Type of disability (n=150)



**Figure 4:** Type of treatment receiving (n=150)



**Figure 5:** Type of rehabilitation receiving (n=150)



**Figure 6:** Means of rehabilitation (n=150)

**Table 3:** Association between gender and type of stroke (n=150)

Gender	Type of stroke		Total	$\chi^2$	p-value
	Ischemic	Hemorrhagic			
Male	9(6.0)	89(59.3)	98(65.3)	34.023	0.001
Female	27(18.0)	25(16.7)	52(34.7)		
Total	36(24.0)	114(76.0)	150(100.0)		

**Table 4:** Association between family type and type of stroke (n=150)

Family type	Type of stroke		Total	$\chi^2$	p-value
	Ischemic	Hemorrhagic			
Joint	18(12.0)	28(18.7)	46(30.7)	8.327	0.004
Nuclear	18(12.0)	86(57.3)	104(69.3)		
Total	36(24.0)	114(76.0)	150(100.0)		

**Table 5:** Association between income and type of stroke (n=150)

Income group	Type of stroke		Total	$\chi^2$	p-value
	Ischemic	Hemorrhagic			
≤5360	0(0.0)	3(2.0)	3(2.0)	26.844	0.001
5361-21270	0(0.0)	49(32.7)	49(32.7)		
21271-65761	34(22.7)	54(36.0)	88(58.7)		
>65761	2(1.3)	8(5.3)	10(6.7)		
Total	36(24.0)	114(76.0)	150(100.0)		

## DISCUSSION

The present study found that average age of the respondents was  $53.43 \pm 12.87$  years. Age is the single most important risk factor for stroke. Frequency of stroke rises exponentially with

increasing age. The risk of stroke doubles for each successive decade after age 55 years.<sup>[10,11]</sup> It estimates that almost 73% stroke occurs in age 45-64 age group in Bangladesh which affect the golden years of active population. Male was quite double than female. The

greater prevalence of stroke in men is well known.<sup>[12]</sup> More than half of the respondents came from upper middle-income group. Chapman et al.<sup>[13]</sup> which showed the incidence of stroke was high among the high-income group. Three-fourth of the respondents (76%) suffered from hemorrhagic stroke and one-fourth (24%) ischemic stroke. Ischemic stroke account for 50%–85% of all strokes worldwide.<sup>[14]</sup> Speech problem have found significantly higher among hemorrhagic stroke compared to ischemic stroke. About 97.30% of the patients suffered from hemiplegia. Haque MM et al and Rahman KM et al found that 51% and 88.24% hemiplegic in their study.<sup>[15,16]</sup> Data also shows that, 47.8% respondents were right sided hemiplegic and 52.2% were left sided hemiplegia among the hemiplegic respondents. They also develop 65.7% dysarthria, 17.7% motor aphasia, and 16.6% were normal due to post stroke complication. About 96.70% patients received both medication and rehabilitation. Almost all of the patients were receiving physiotherapy. Active assisted exercise as means of rehabilitation was prominent (88%) and passive exercise was provided among 12% patients. Perhaps there is a persuasive argument for delivering evidence-based stroke rehabilitation with appropriate levels of quality and intensity as it is considered a human right in many societies. Evidence for physical interventions relating to walking and physical rehabilitation after stroke is becoming increasingly available in the form of high quality systematic reviews that can inform clinical guidelines as well as high level government strategy with respect to stroke. Statistical significant association was found between gender and type of stroke. Statistical significant association was found between family type and type of stroke. Statistical

significant association was found between income group and type of stroke. According to Bhattacharjee M et al,<sup>[17]</sup> findings Stroke was more common (58.19%) in male than female (41.8%), mean age of male stroke patients was 60.58±12.36 years and that of female was 63.58±13.62 years with no significant statistical sex difference. According to Uddin et. Al,<sup>[18]</sup> 80% of the stroke patients belong to middle class economic condition who avail free services of Govt. hospitals in Bangladesh. The study of Hossain AM,<sup>[19]</sup> findings shows that low-income group (monthly income TK <5000) comprised the majority (47%). Two thirds of stroke survivors require rehabilitation, and 50% do not regain their independence.<sup>[20]</sup> Disability caused by stroke has a massive impact on the patient, with social consequences and physical consequences of stroke being equally devastating.<sup>[21]</sup> Recent studies suggest that between one-fourth and one-third of stroke patients experience persistent dependency in one or more activities of daily living (ADL's) by 6 months after their strokes. Stroke survivors are often greatly challenged by post stroke depression, which can lengthen rehabilitation and recovery time considerably.

### Limitations of the study

Monthly income of the respondents was collected based on the verbal response so there might be some discrepancy at concrete. Age was estimated on the basis of response. So exact age detection was limitation of this study.

### CONCLUSIONS

Disability is common after stroke. Reducing disability through rehabilitation programme is demanded. Physiotherapy, using a mix of components from different approaches, is

effective for the recovery of function and mobility after stroke. Treatment sessions of 30-60 minutes, 5-7 days a week may provide a significant beneficial effect. Effective and comprehensive rehabilitation programme

specifically designed for individual patients should be implemented comprehensively. More sample-based study can be conducted to get more precise and accurate result, which can be both qualitative and quantitative in nature.

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Source of Support: Nil, Conflict of Interest: None declared