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Association between Socio-Demographic Factors with Medical Presentations and Functional Outcome by 2 Weeks Physiotherapy Treatment among Hospitalized Stroke Patients

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Abstract

***Introduction:** Stroke is an important cause of early death and disability in low-income and middle-income countries like Bangladesh.*

***Objective:** To see the association between socio-demographic factors with medical presentations & functional outcome by 2 weeks physiotherapy treatment among hospitalized stroke patients.*

***Materials and Methods:** Cross sectional hospital based study was conducted to see the association between socio-demographic factors with medical presentations & functional outcome by 2 weeks physiotherapy treatment among hospitalized stroke patients. Purposive sampling technique was followed to select 105 samples. Functional outcome was measured before and after treatment FIM scale. Data were processed and analyzed by using Statistical package of social science, version 20. P- Value less than 0.05 was considered significant.*

***Results:** Study showed that the lowest age was 32 years, highest age was 79 year and mean age was 55 years among the respondents. Female were higher (51.40%) than male (48.60%). About 51.40% were attacked by ischemic stroke and 48.60 % were attacked by haemorrhagic stroke. About 68.60% of the respondents were under left side hemiplegic and 31.40% were right side hemiplegic. There was significant association among age, duration of stroke of the patient and functional outcomes with rolling affected to unaffected side, unaffected to affected side, sit to supine & gait (P< 0.05); between stroke duration of the patient and functional outcomes with rolling affected to unaffected side, rolling unaffected to affected side, supine to sit, sit to supine, transfer from bed to wheel chair & gait (P< 0.05); between types of stroke and functional outcomes with rolling unaffected to affected side (P< 0.05); between affected sides and functional outcomes with rolling affected to unaffected side (P< 0.05) and between medical, musculoskeletal and neurological complications of the participants and functional outcomes after 2 weeks Physiotherapy treatment (P< 0.05).*

***Conclusion:** This study has acknowledged the functional outcome among hospitalized stroke patients after 2 weeks physiotherapy treatment & provided association between some factors and functional outcome.*

Key words: *Factors, Functional outcome, stroke & Physiotherapy.*

Introduction

Stroke is an important cause of early death and disability in low-income and middle-income countries like Bangladesh.[1-2] There have been reported that 20% of patients admitted for stroke already have moderate to severe disability and 10% have dementia before the stroke event.[3] Around 50% to 75% of all stroke survivors have residual cognitive and motor disabilities that prevent them from living independently. [3] Within one year of stroke, one third of stroke patients were died and another third was left with disability but restricted in performing simple activities of daily living and requiring some kind of assistance.[5] On the basis of recovery, improved walking function was one of the most often expressed by stroke patients.[5] Stroke rehabilitation should be started as early as disease identification has been confirmed. It was medically practicable & sound. It was distinguished in the previous study that have identified as functional outcomes was improved when rehabilitation services was began just immediate after diagnosis in the acute phase of their diseases.[6-8] In addition to that early rehabilitation therapy service was enhanced functional outcomes & quality of life of stroke patients.[9-10]

Objective

The objective of this study was to see the association between socio-demographic factors with medical presentations & functional outcome by 2 weeks physiotherapy treatment among hospitalized stroke patients.

Materials and Methods

Quantitative approach cross sectional hospital based study was conducted to see the association between socio-demographic factors with medical presentations & functional outcome by 2 weeks physiotherapy treatment among hospitalized stroke patients. Hospital based stroke patients were recruited as study population. The study was conducted at Bangladesh Health Professions Institute (BHPI) but data was collected from Ibn Sina Hospital, Dhanmondi, Dhaka. The study duration was from august 2017 to April 2018. Purposive sampling technique was followed to select 105 samples. Stroke patients who were admitted in Ibn Sina Hospital & age not more than 80 years were included in this study. Patients with duration of stroke more than 3 months & unconscious patients were excluded in this study. A pre-tested structured questionnaire was used as data collection instrument. Functional outcome was measured before and after treatment by Functional Independence Measure (FIM) scale. Data were processed and analyzed by using Statistical package of social science, version 20. P- Value less than 0.05 was considered significant.

Ethical statement

Ethical clearance was obtained from the ethical committee of Bangladesh Health Professions Institute (BHPI), & Ibn Sina Hospital, Dhaka.

Functional Independence measurement (FIM)

scale was regularly measured first at admission to the rehabilitative care and then at discharge from the care The FIM scale was designed to provide a consistent data collection tool compared to the rehabilitation results in continued health care.[11] FIM scale was an 18-item scale, measures the degree of independence in the stroke survivor on a 7-point scale (7-Complete Independence to 1-Total Assistance). According to this scale, higher scores were representing more independent functioning.

Results

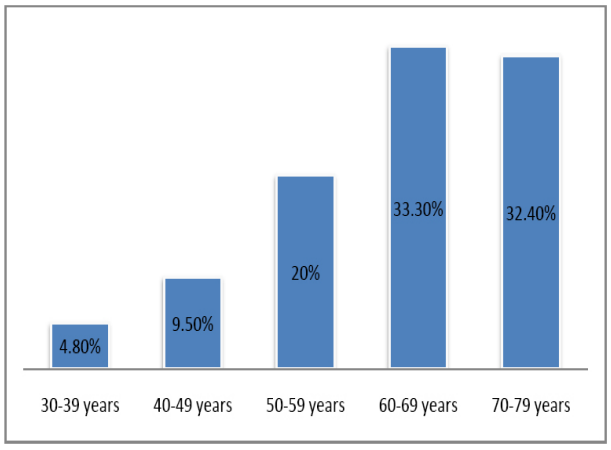


Figure 1. *Distribution of the respondents by their age*

In this study the lowest age of the respondents was 32 years, highest age was 79 year and mean age was 55 year. Figure 1 showed 33.30% of the respondents were the highest age group of 60-69 years followed by age group of 70-79 years which was 32.40%.

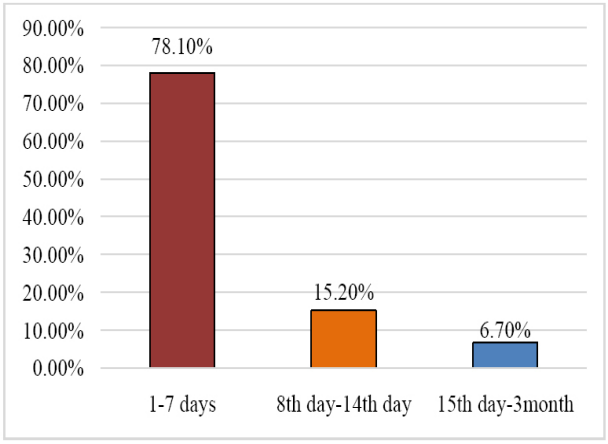


Figure 2. *Distribution of the respondents according to duration of attack by stroke*

Among the total respondents female were higher 54 (51.40%) than male 51 (48.60%). Figure 2 showed that the respondents were categorized by the duration of attack by stroke. Among the total respondents 78.10% were under the category of 1 to 7 days.

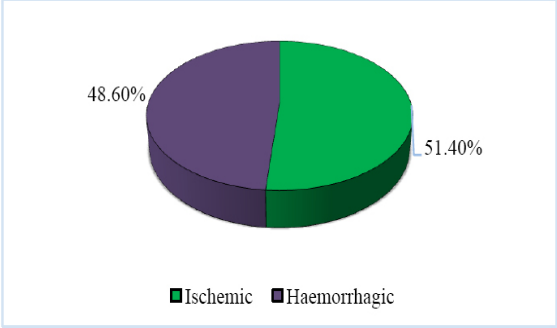


Figure 3. *Distribution of the respondents by type of stroke*

Among the total respondents 51.40% (n=54) were attacked by ischemic stroke and48.60 % (n=51) were attacked by haemorrhagic stroke (Figure 3).

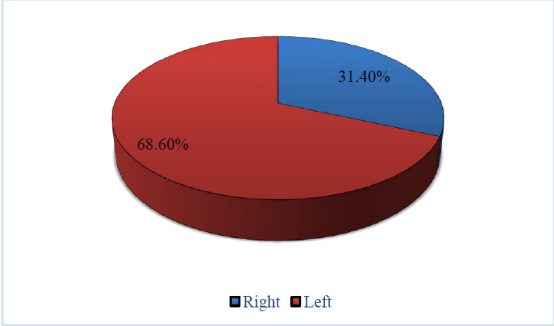


Figure 4. *Distribution of the respondents by the pattern of hemiplegic side*

Among 68.60% of the respondents were under left side hemiplegic and 31.40% were right side hemiplegic (Figure 4).

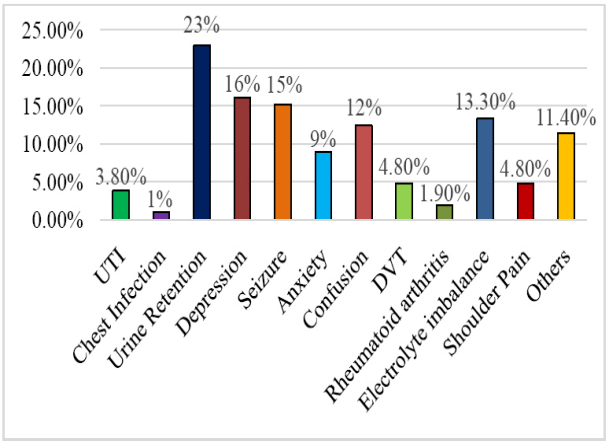


Figure 5. *Distribution of the respondents by their complications during initial assessment*

Figure 5 showed that the respondents were suffered by different types of complications. Among that urine retention was highest (23%).

Association between Age & Functional Outcome

Table 1 revealed that rolling affected side to unaffected side was at 5% level of significant p=0.05 which was significantly associated with age of the stroke patients. In rolling unaffected side to affected side was at 5% level of significant p=0.01 which was significantly associated with age of the stroke patients. In sit to supine was at 5% level of significant p=0.04 which was significantly associated with age of the stroke patients. In gait was at 5% level of significant p=0.00 which was significantly associated with age of the stroke patients. Bridging, Supine to sitting, sitting static & dynamic balance, standing static & dynamic balance& transfer from bed to wheel chair was not associated with age of the stroke patients (P>0.05).

Association between Duration of Stroke Attack & Functional Outcome

Table 1 found that rolling affected side to unaffected side was at 5% level of significant p=0.05 which was significantly associated with duration of stroke. In rolling unaffected side to affected side was at 5% level of significant p=0.00 which was significantly associated with duration of stroke. In supine to sit was at 5% level of significant p=0.02 which was significantly associated with duration of stroke. In

sit to supine was at 5% level of significant p=0.00 which was significantly associated with duration of the stroke. In transfer from bed to wheel chair was at 5% level of significant p=0.00 which was significantly associated with duration of the stroke. In gait was at 5% level of significant p=0.00 which was significantly associated with duration of the stroke. Bridging, sitting static & dynamic balance, standing static & dynamic balance was not associated with duration of the stroke (P>0.05).

Association between Type of Stroke & Functional Outcome

In our study revealed that rolling unaffected side to affected side was at 5% level of significant p=0.02 which was significantly associated with type of stroke. Rolling affected side to unaffected side, bridging, Supine to sit, sit to supine, sitting static & dynamic balance, standing static & dynamic balance, transfer from bed to wheel chair and gait was not associated with type of stroke (P>0.05) (Table 1).

Table 1. *Distribution of the respondents by association among age, duration of stroke attack, type of stroke with functional outcomes after 2 weeks Physiotherapy treatment*

Functions	Age	Duration of stroke attack	Type of stroke
	P-value	P-value	P-value
Rolling affected Side to unaffected side	0.05*	0.05*	0.16
Rolling unaffected side to affected Side	0.01*	0.00*	0.02*
Bridging	0.09	0.88	0.08
Supine to sit	0.24	0.02*	0.38
Sit to supine	0.04*	0.00*	0.76
Sitting static balance	0.19	0.23	0.82
Sitting dynamic balance	0.06	0.11	0.14
Standing static balance	0.26	0.17	0.77
Standing dynamic balance	0.09	0.14	0.13
Transfer from bed to wheel chair	0.32	0.00*	0.08
Gait	0.00*	0.00*	0.08

*Significant

Association between Affected Sides & Functional Outcome

Table 2 showed that rolling affected side to unaffected side was at 5% level of significant p=0.04 which was significantly associated with affected side. Rolling unaffected side to affected side, bridging, Supine to sit, sit to supine, sitting static & dynamic balance, standing static & dynamic balance, transfer from bed to wheel chair and gait was not associated with affected side (P>0.05).

Association between Medical, musculoskeletal and neurological complications & functional outcome

This study showed that rolling unaffected side to affected side was at 5% level of significant p=.01 which was significantly associated with medical, musculoskeletal and neurological complications. In bridging was at 5% level of significant p=.03 which was significantly associated with medical, musculoskeletal and neurological complications. In supine to sit was at 5% level of significant p=.00 which was significantly associated with medical, musculoskeletal and neurological complications. In sit to supine was at 5% level of significant p=.01 which was significantly associated with medical, musculoskeletal and neurological complications. In sitting static balance was at 5% level of significant p=.00 which was significantly associated with medical, musculoskeletal and neurological complications. In sitting dynamic balance was at 5% level of significant p=.00 which was significantly associated with medical, musculoskeletal and neurological complications. In standing static balance was at 5% level of significant p=.00 which was significantly associated with medical, musculoskeletal and neurological complications. In standing dynamic balance was at 5% level of significant p=.00 which was significantly associated with medical, musculoskeletal and neurological complications. In transfer from bed to wheel chair was at 5% level of significant p=.00 which was significantly associated with medical, musculoskeletal and neurological complications. In gait was at 5% level of significant p=.00 which was

significantly associated with medical, musculoskeletal and neurological complications. Rolling affected side to unaffected side was not associated with medical, musculoskeletal and neurological complications (P>0.05) (Table 2).

Table 2. *Distribution of the respondents by association between affected sides, medical, musculoskeletal and neurological complications and functional outcomes after 2 weeks Physiotherapy treatment*

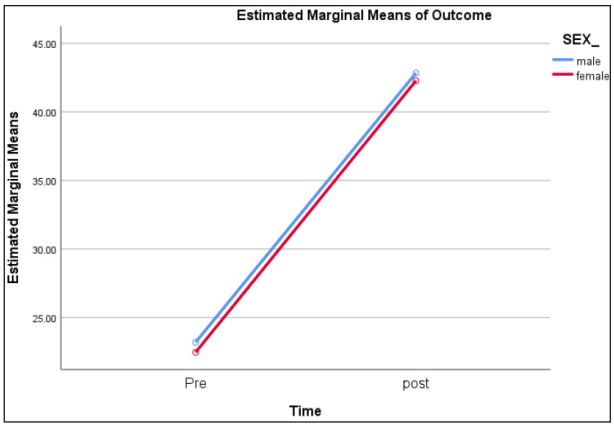
Functions	Affected sides	Medical, musculoskeletal and neurological complications
	P-value	P-value
Rolling affected Side to unaffected side	0.04*	0.07
Rolling unaffected side to affected Side	0.68	0.01*
Bridging	0.14	0.03*
Supine to sit	0.16	0.00*
Sit to supine	0.37	0.01*
Sitting static balance	0.50	0.00*
Sitting dynamic balance	0.48	0.00*
Standing static balance	0.80	0.00*
Standing dynamic balance	0.79	0.00*
Transfer from bed to wheel chair	0.96	0.00*
Gait	.89	.00*

*Significant

In two-way ANOVA test for time of attack calculated F = 347.10 & p0.00 at 5% level of significant that means time of attack was significant for functional outcome after 2 weeks physiotherapy treatment (Table 3).

Table 3. *Association between mean time of stroke attack and functional outcome by two-way ANOVA test*

Functional outcome		
The mean time of stroke attack	F-value	P –value
	347.10	0.00



Discussion

The aim of this study was to see the association between socio-demographic factors with medical presentations & functional outcome by 2 weeks physiotherapy treatment among hospitalized stroke patients. In our study found that the mean age was 55 years. Near about similar findings have been supported to the findings of previous study of Pradon D et al[12] who found that the mean age was 53.3±13.7, Souso CO et al[13] who found that the mean age was 53.2 ±7.52, Flonsbjer UB et al[14] who found that the mean age was 58 ±6.4. Another study carried out that the mean age was 61.5± 14.4. [16] In our study found that female respondents were higher 54 (51.40%) than male 51 (48.60%). Dissimilar findings have been carried out to the findings of the previous study of Hossain AM et al[15] who revealed that male respondents were 74% and female were 25%, Wartenberg KE et al[18] who showed that male respondents were 77.78% and female were 22.22%, Nascimento LR et al[17] who revealed that male respondents were 71.42% and female were 28.58%. Another study revealed that the ratio of male & female patients was 3·44 & 2·41.[19] In our study found that 68.60% were affected in left side and 31.40% were affected in right side. In Netherland, 12 were left sided hemiplegic, 13 were right sided hemiplegic and 2 were bilateral stroke.[18] In Brazil, 43% of the respondents were right sided hemi paresis and 57% were left sided hemi paresis.[17] Another study showed that 44.64% of the respondents were right sided hemi paresis and 55.35% were left sided hemi paresis.[25] This study showed that 51.40% were ischaemic and 48.60% were haemorrhagic stroke among participants. Other study in East China showed that 78% ischemic and 22% hemorrhagic stroke.[20] In USA, participants

of stroke survivors categorized as 89% ischemic and 11% hemorrhagic[21] and another study in Netherland reported that 24 ischemic and 3 hemorrhagic stroke.[18] Another more study reported that 75% respondents were ischemic and 25% respondents were hemorrhagic stroke,[12] 80% respondents were ischemic and 20% respondents were hemorrhagic stroke,[23, 24] 38% of the respondents had ischemic type stroke and 62% had hemorrhagic type of stroke,[22] & in USA, participants of stroke survivors categorized as 89% was ischemic and 11% was hemorrhagic.[21] In our study found that1% were chest infection, 23% were urine retention, 16% were depression, 15% were seizure, 9% were anxiety, 12% were confusion, 4.80% were deep venous thrombosis, 1.90% were rheumatoid arthritis, 13.30% were electrolyte imbalance, 4.80% were shoulder pain& 11.40% were other complications. Other study revealed that most medical complications develop within the first few weeks of stroke.[26] In the previous study revealed that urinary tract infection was 24%, chest infection was 22%, fall was 25%, pressure sore was 21%, recurrent stroke was 9%, epileptic seizure was 3% & deep vein thrombosis was 2% respectively.[27] This study showed that there was significant association between ages of the patient and functional outcomes with rolling affected to unaffected side, unaffected to affected side, sit to supine & gait ($P< 0.05$). There was significant association between stroke duration of the patient and functional outcomes with rolling affected to unaffected side, rolling unaffected to affected side, supine to sit, sit to supine, transfer from bed to wheel chair & gait ($P< 0.05$). There was significant association between duration of stroke and functional outcomes with rolling affected to unaffected side, rolling unaffected to affected side, supine to sit, sit to supine, transfer from bed to wheel chair & gait ($P< 0.05$). There was significant association between types of stroke and functional outcomes with rolling unaffected to affected side ($P< 0.05$). There was significant association between affected sides and functional outcomes with rolling affected to unaffected side ($P< 0.05$). There was significant association between medical, musculoskeletal and neurological complications of the participants and functional outcomes after 2 weeks Physiotherapy treatment ($P< 0.05$). In the previous study revealed that well designed exercise programs was enhanced functional abilities after stroke.[28] Another study showed that urinary tract infection (UTI) was occurred frequently after stroke and was associated with poorer outcomes with increased odds of decline in neurological status during hospitalization.[29]

Conclusion

This study has acknowledged the functional outcome among hospitalized stroke patients after 2 weeks physiotherapy treatment & provided association between some factors and functional outcome which will be helpful to facilitate in rehabilitation and enhance functional activities.

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