

## Stress among the stroke caregivers at the centre for the rehabilitation of the paralyzed, Bangladesh

RAJU AHMED

Physiotherapy specialist

Islami Bank Central Hospital, Dhaka, Bangladesh

Md. DELOWAR HOSSAIN CHOWDHURY<sup>1</sup>

PhD Researcher

Bangladesh University of Professionals, Bangladesh

Consultant & In-charge of Army Sports Physiotherapy Centre

Army Sports Complex, Dhaka Cantonment, Bangladesh

PARVIN SULTANA SHILPY

Physiotherapy specialist

Ibn Sina Hospital, Dhanmondi, Dhaka, Bangladesh

SHAHARIA AKTER SUMA

Physiotherapy specialist

Islamic Bank Central Hospital, Dhaka, Bangladesh

FARHANA FARDOWSI

Consultant (Physiotherapy)

Protibondhi Seba O Sahajjo kendro (PSOSK), JPUF

Ministry of Social Welfare, Dhaka, Bangladesh

### Abstract

**Introduction:** Stroke is the third leading cause of death in Bangladesh. It is the main cause of long time disability.

**Objective:** To find out the stress level of the stroke caregivers at the Centre for the Rehabilitation of the Paralyzed (CRP), Bangladesh.

**Materials and Methods:** A cross sectional descriptive study was conducted to find out the stress level of the stroke caregivers at the Centre for the Rehabilitation of the Paralyzed (CRP), Bangladesh. Both male and female respondents were included with the sample size

---

<sup>1</sup> Corresponding author: dhnitor@gmail.com

*of 57. A pretested structure questionnaire was used to collect the data on the basis of objectives and variables. A convenience sampling technique was used for sample selection. The study duration was from august 2017 to April 2018. Study outcome was measured by Perceived Stress Scale. The data were analyzed by statistical package of social science (SPSS), version 16. Data were analyzed according to the objectives of the study.*

**Results:** *3.5%, 22.8%, 35.1%, 26.3%, 7.0%, 1.8% & 3.5% of the respondents belonged to age group  $\leq 20$  years, 21-30 years, 31-40 years, 41-50 years, 51-60 years, 61-70 years &  $\geq 70$  years respectively. Male & female respondents were 35.1% & 64.9% respectively. The majority family members of stroke caregivers were 5-8 persons. The highest education level of the respondents was under Secondary School Certificate (SSC). 61.4%, 8.8%, 15.8% & 14.0% of the stroke caregivers were spouse, daughter, son & sibling respectively. More than half of the stroke caregivers were spouse. 56.1% of the stroke caregivers felt sometimes upset because of something that happened unexpectedly in the last month respective. Majority of the respondents (87.7%) were moderate stress level. There was no significant association between socio-demographic factors & stress level of the respondents ( $p > 0.05$ ).*

**Conclusion:** *Majority of the respondents were moderate stress level followed by mild stress level of the respondents.*

**Key words:** Stroke, Caregiver, Stress, Bangladesh

## **INTRODUCTION:**

Stroke is the third most common cause of death and the main cause of long time disability.<sup>1-6</sup> Stroke is the third leading cause of death in Bangladesh. The World Health Organization ranks Bangladesh's mortality rate due to stroke as number 124 in the world. The reported prevalence of stroke in Bangladesh is 6.72%. Hospital-based studies conducted in past decades have indicated that hypertension is the main cause of ischaemic and haemorrhagic stroke in Bangladesh. The 53.59 per 1, 00,000 number of disability adjusted life years lost due to stroke showed that stroke severely impacts Bangladesh's economy.<sup>6</sup> A great burden and stress among family members caring for chronically

disabled relatives who have stroke disorders.<sup>7</sup> An immense burden and stress among family members caring for chronically disabled patients that lower the levels of physical and mental well-being and limit their ability to perform care giving tasks.<sup>8</sup> Increased morbidity and mortality in caregiver's was higher levels of burden and stress among family members caring for chronically disabled patients. Feeling of helplessness in the caregiver is high. Stress, family burden and lack of motivation were identified as the most problematic area of the caregivers.<sup>9</sup>

**Objective:** The objective of the study was to find out the stress level of the stroke caregivers at the Centre for the Rehabilitation of the Paralyzed (CRP), Bangladesh.

**Methodology:** A cross sectional descriptive study was conducted to find out the stress level of the stroke caregivers at the Centre for the Rehabilitation of the Paralyzed (CRP), Bangladesh. Both male and female respondents were included with the sample size of 57. A pretested structure questionnaire was used to collect the data on the basis of objectives and variables. The caregiver's minimum one month of stay with the Stroke patients were included in the study. The caregivers not belonging to family members were excluded in this study. Study outcome was measured by Perceived Stress Scale. A convenience sampling technique was used for sample selection. This study was an academic part of the Masters course that's why it had to finish according to academic calendar. However the study duration was from august 2017 to April 2018. Ethical approval was taken from Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI), Dhaka, Bangladesh. The data were analyzed by statistical package of social science (SPSS), version 16. Data were analyzed according to the objectives of the study. P- value more than 0.05 was considered non significant.

**Ethical clearance:** Ethical clearance was obtained from the Ethical Review board of Bangladesh Health Professions Institute as well as from the head of program of the Centre for the Rehabilitation of the Paralyzed (CRP), Savar, Dhaka.

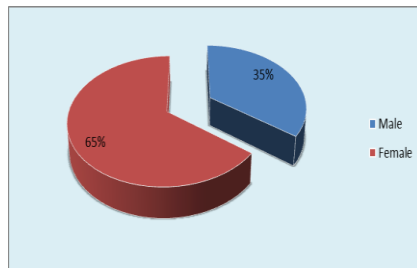
**The Perceived Stress Scale (PSS-10)**, a 10-item scale, asked stroke spousal caregivers to rate the extent to which they have felt their life to be stressful during the past month. Item scores as rated on a 5-point scale (0-4 score) range from 0 to 40 score, with higher scores suggesting higher levels of stress.<sup>23</sup>

**RESULTS:**

Table 1 showed that 3.5%, 22.8%, 35.1%, 26.3%, 7.0%, 1.8% & 3.5% of the respondents belonged to age group ≤ 20 years, 21-30 years, 31-40 years, 41-50 years, 51-60 years, 61-70 years & ≥ 70 years respectively.

**Table 1: Distribution of the respondent according to age group (n = 57)**

| Age group (years) | Number (n) | Percentage (%) |
|-------------------|------------|----------------|
| ≤ 20              | 2          | 3.5            |
| 21 – 30           | 13         | 22.8           |
| 31 – 40           | 20         | 35.1           |
| 41 – 50           | 15         | 26.3           |
| 51 – 60           | 4          | 7.0            |
| 61 – 70           | 1          | 1.8            |
| ≥ 71              | 2          | 3.5            |
| Total             | 57         | 100.0          |



**Figure 1: Distribution of the respondent according to sex.**

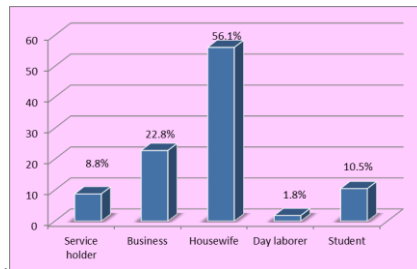
Figure 1 showed that male & female respondents were 35.1% & 64.9% respectively. Female respondents were more than male.

Table 2 showed that 3.5%, 19.3%, 29.8%, 28.1%, 17.5% & 1.8% of the stroke caregivers were illiterate, primary (0-5), under Secondary School Certificate (SSC), SSC, Higher secondary school certificate (HSC) & Graduate respectively. The highest education level

of the respondents were under SSC (6-10) followed by SSC (Secondary School Certificate) & Primary level.

**Table 2: Distribution of the respondent according to Educational background (n = 57)**

| Educational background | Number (n) | Percentage |
|------------------------|------------|------------|
| Illiterate             | 2          | 3.5        |
| Primary (0-5)          | 11         | 19.3       |
| Under SSC (6-10)       | 17         | 29.8       |
| SSC                    | 16         | 28.1       |
| HSC                    | 10         | 17.5       |
| Graduate               | 1          | 1.8        |
| Total                  | 57         | 100.0      |



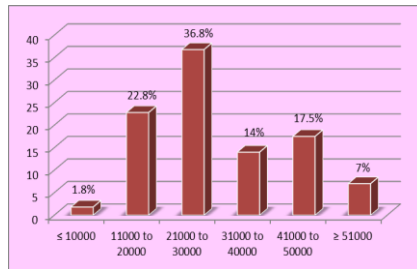
**Figure 2: Distribution of the respondent according to their occupation.**

Figure 2 showed that 8.8%, 22.8%, 56.1%, 1.8% & 10.5% stroke caregivers were service holder, business, house wife, day laborer & students respectively.

Table 3 found that 15.8%, 78.9% & 5.3% of the respondents belonged to family members were  $\leq 4$  members, 5-8 members &  $\geq 9$  members respectively. The majority family members of stroke caregivers were 5-8 persons.

**Table 3: Distribution of the participants according to family members (N = 57)**

| Family members | n  | Percentage |
|----------------|----|------------|
| $\leq 4$       | 9  | 15.8       |
| 5 to 8         | 45 | 78.9       |
| $\geq 9$       | 3  | 5.3        |
| Total          | 57 | 100.0      |



**Figure 3: Distribution of the respondent according to monthly family income (BDT).**

Figure 3 revealed that 1.8%, 22.8%, 36.8%, 14%, 17.5% & 7% of stroke caregivers belonged to family monthly income was ≤ 10000 taka, 11000-20000 taka, 21000-30000 taka, 31000-40000 taka, 41000-50000 taka & ≥ 51000 taka respectively.

Table 4 found that 61.4%, 8.8%, 15.8% & 14.0% of the stroke caregivers were spouse, daughter, son & sibling respectively.

**Table 4: Distribution of the respondent according to the relation with the care recipient (n=57)**

| Relation     | Number (n) | Percentage   |
|--------------|------------|--------------|
| Spouse       | 35         | 61.4         |
| Daughter     | 5          | 8.8          |
| Son          | 9          | 15.8         |
| Sibling      | 8          | 14.0         |
| <b>Total</b> | <b>57</b>  | <b>100.0</b> |

Table 5 showed that 66.7%, 28.1% & 5.3% of the respondents belonged to duration in month ≤ 6 months, 7 to 12 months and ≥ 13 months respectively. 1.8%, 8.8% & 89.5% of the stroke caregivers belonged to time in hour's/day ≤ 8 hours, 9 to 16 hours and ≥ 17 hours respectively.

**Table 5: Distribution of the respondent according to duration of care giving (n = 57)**

| Duration (month) | Number (n) | Percentage   | Time (hours/ day) | Number (n) | Percentage   |
|------------------|------------|--------------|-------------------|------------|--------------|
| ≤ 6 months       | 38         | 66.7         | ≤ 8 hours         | 1          | 1.8          |
| 7 to 12 months   | 16         | 28.1         | 9 to 16 hours     | 5          | 8.8          |
| ≥ 13 months      | 3          | 5.3          | ≥ 17 hours        | 51         | 89.5         |
| <b>Total</b>     | <b>57</b>  | <b>100.0</b> | <b>Total</b>      | <b>57</b>  | <b>100.0</b> |

Table 6 revealed that 8.8%, 22.8%, 56.1%, 7.0% & 5.3% of the respondents were never, almost never, sometimes, fairly often & very often been upset because of something that happened unexpectedly in the last month respective.

**Table 6: Distribution of the respondent according to how often have the respondent been upset because of something that happened unexpectedly in the last month (N = 57).**

| Upset        | Number (n) | Percentage   |
|--------------|------------|--------------|
| Never        | 5          | 8.8          |
| Almost never | 13         | 22.8         |
| Sometimes    | 32         | 56.1         |
| Fairly often | 4          | 7.0          |
| Very often   | 3          | 5.3          |
| <b>Total</b> | <b>57</b>  | <b>100.0</b> |

Table 7 found that 10.5%, 33.3%, 38.6%, 12.3% & 5.3% of the stroke caregivers were never, almost never, sometimes, fairly often & very often felt nervous and stressed in the last month respectively.

**Table 7: Distribution of the respondent according to how often have the respondent felt nervous and stressed in the last month (N = 57).**

| Felt nervous and stressed | Number (n) | Percentage |
|---------------------------|------------|------------|
| Never                     | 6          | 10.5       |
| Almost never              | 19         | 33.3       |
| Sometimes                 | 22         | 38.6       |
| Fairly often              | 7          | 12.3       |
| Very often                | 3          | 5.3        |
| Total                     | 57         | 100.0      |

Table 8 found that 8.8%, 33.3%, 40.4%, 14.0% & 3.5% of the stroke caregivers were never, almost never, sometimes, fairly often & very often been angered because of things that were outside of his/her control in the last month respectively.

**Table 8: Distribution of the respondent according to how often he been angered because of things that were outside of his control (N = 57).**

| Angered because of things that were outside of his/her control | Number (n) | Percentage |
|--|------------|------------|
| Never  | 5          | 8.8        |
| Almost never   | 19         | 33.3       |
| Sometimes  | 23         | 40.4       |
| Fairly often   | 8          | 14.0       |
| Very often   | 2          | 3.5        |
| Total  | 57         | 100.0      |

Table 9 showed that 12.3% of the stroke caregivers were low stress level & 87.7% of the stroke caregivers were moderate stress level. No respondent was found in severe stress level.

**Table 9: Distribution of the respondent according to their stress level by Perceived Stress Scale (n= 57).**

| Score                      | Number (n) | Percentage |
|----------------------------|------------|------------|
| Low stress (0 to 13)       | 7          | 12.3       |
| Moderate stress (14 to 26) | 50         | 87.7       |
| Severe stress (>26)        | 00         | 0.0        |
| Total                      | 57         | 100.0      |

Table 10 showed that there was no significant association between socio-demographic factors with stress level of the respondents.

**Table 10: Association between stress level and Socio-demographic factors of the respondents:**

| Socio-demographic factors  | P – value |
|----------------------------|-----------|
| Age                        | 0.155     |
| Sex                        | 0.187     |
| Educational background     | 0.552     |
| Occupation                 | 0.195     |
| Family members             | 0.281     |
| Monthly income             | 0.321     |
| Relation to care recipient | 0.169     |



## **DISCUSSION:**

This study showed that the age group of 31-40 years which accounted for highest percentage of the respondents (35.1%) followed by age group of 41-50 years which accounted for 26.3% of the respondents. Female respondent was higher than male. In the previous study showed that the mean age of caregivers was 30–39 years which accounted for 48% of the total.<sup>10</sup> In our study showed that male & female respondents were 35.1% & 64.9% respectively. In the previous study showed that male respondents were 13.3% & female were 86.6% respectively.<sup>11</sup> This study showed that female respondent was higher than male. One more study showed that female respondents were more than male.<sup>12-21</sup> This study revealed that the highest education level was under SSC (6-10) which accounted for 29.8% of the respondents followed by SSC (Secondary School Certificate) for 28.1% & primary which accounted for 19.3% of the respondents. Near about similar findings have been carried out in the previous study of Jaracz K et al editors who had 34% of stroke caregivers were secondary school level & 20% of the stroke caregivers were primary level education.<sup>21</sup> In the previous study showed that most of the caregivers were found to be not literate which accounted for 61% of the respondents.<sup>11</sup> This study showed that the highest stroke caregivers which was accounted as 36.8% of the respondents have monthly family income in the range of 21000 to 30000 taka followed by 22.3% of the respondents have monthly family income in the range of 21000 to 30000 taka. In the previous study revealed that the stroke caregivers predominantly belonged to poor socio-economic status.<sup>11</sup> This study found that 61.4%, 8.8%, 15.8% & 14.0% of the stroke caregivers were spouse, daughter, son & sibling respectively. More than half of the stroke caregivers were spouse which accounted 61.4% of total respondents. Similar findings have been supported to the finding of the previous study of Kotila M et al<sup>22</sup> who found 55% of stroke caregivers were spouse & Sillima RA et al editors<sup>12</sup> who found 63% of stroke caregivers were spouse. Another study showed that 33.3% of stroke caregivers were spouse.<sup>23</sup> In our study showed that 8.8% of the stroke caregivers were daughter. Similar findings have been carried out to the finding of the previous study of Rajan B et al editors<sup>11</sup> who found 10% of stroke female caregivers were spouse. This

study revealed that 15.8% of the stroke caregivers were son. In the previous study revealed that 9% of stroke male caregivers were son<sup>11</sup> & 35% of the stroke caregivers were son/daughter.<sup>24</sup> In our study revealed that 14.0% of the stroke caregivers were sibling. In the previous study revealed that 5% of stroke caregivers were sibling.<sup>22</sup> This study revealed that 56.1% of the stroke caregivers felt sometimes upset because of something that happened unexpectedly in the last month respective. In the previous study revealed that 88.7% of the stroke caregivers felt well upset because of the patient's behaviors.<sup>11</sup> In our study found that majority of the respondents (87.7%) were moderate stress level followed by mild stress level (12.3%) of the respondents. No respondent was found in severe stress level. This study showed that there was no relationship between the perceived stress scale with respect to age ( $p > 0.05$ ) and sex ( $p > 0.05$ ). Similar findings have been supported to the findings of previous study of Santos EB et al editors<sup>24</sup> who found there was also no relationship age ( $p > 0.05$ ) and sex ( $p > 0.05$ ) with the perceived stress scale.

## **CONCLUSION:**

More than half of the stroke caregivers were spouse & felt sometimes upset because of something that happened unexpectedly in the last month respective. Majority of the respondents were moderate stress level followed by mild stress level of the respondents.

## **REFERENCES**

1. Pandian JD, Sudhan P. Stroke epidemiology and stroke care services in India. *Journal of stroke*. 2013 Sep;15(3):128.
2. Eng JJ, Tang PF. Gait training strategies to optimize walking ability in people with stroke: a synthesis of the evidence. *Expert Rev Neurother*. 2007 Oct;7(10):1417-36.
3. Gallanagh S, Quinn TJ, Alexander J, Walters MR. Physical activity in the prevention and treatment of stroke. *ISRN neurology*. 2011 Oct 1;2011.
4. Chowdhury AH, Yokoyama T, Kokubo Y, Zaman MM, Haque A, Tanaka H. Apolipoprotein E genetic polymorphism and stroke

- subtypes in a Bangladeshi hospital-based study. *Journal of epidemiology*. 2001;11(3):131-8.
5. Siddique MA, Nur Z, Mahbub MS, Alam MB, Miah MT. Clinical presentation and epidemiology of stroke: a study of 100 cases. *Journal of Medicine*. 2009;10(2):86-9.
  6. WHO Countries Database. Bangladesh: urban health profile. Available at <http://www.who.or.jp/uhcprofiles/Bangladesh.pdf> (accessed 3 February 2012).
  7. Visser-Meily A, Post M, Gorter JW, Berlekom SB, Van Den Bos T, Lindeman E. Rehabilitation of stroke patients needs a family-centred approach. *Disability and Rehabilitation*. 2006 Jan 1;28(24):1557-61.
  8. Spradley BW, Allender JA, editors. *Readings in community health nursing*. Lippincott Williams & Wilkins; 1997.
  9. Mourad GM, Zaki RA, Ali RA. Improving coping abilities among caregivers of patients with cerebrovascular stroke. *J Educ*. 2014;5:8-17.
  10. Ain QU, Dar NZ, Ahmad A, Munzar S, Yousafzai AW. Caregiver stress in stroke survivor: data from a tertiary care hospital-a cross sectional survey. *BMC psychology*. 2014 Dec 1;2(1):49.
  11. Rajan B, Suman G, Pruthvish S, Radhika K. Assessment of stress among caregivers of the stroke survivors: Community based study. *International Journal of Community Medicine and Public Health*. 2016;4(1):211-5.
  12. Silliman RA, Fletcher RH, Earp JL, Wagner EH. Families of elderly stroke patients: Effects of home care. *Journal of the American Geriatrics Society*. 1986 Sep;34(9):643-8.
  13. Silliman RA, Earp JL, Fletcher RH, Wagner EH. Stroke: the perspective of family caregivers. *Journal of Applied Gerontology*. 1987 Dec;6(4):363-71.
  14. Ross S, Morris RG. Psychological adjustment of the spouses of aphasic stroke patients. *International Journal of Rehabilitation Research*. 1988.
  15. Tompkins CA, Schulz R, Rau MT. Post-stroke depression in primary support persons: Predicting those at risk. *Journal of Consulting and Clinical Psychology*. 1988 Aug;56(4):502.

16. Macnamara SE, Gummow LJ, Goka R, Gregg CH. Caregiver strain: Need for late poststroke intervention. *Rehabilitation Psychology*. 1990;35(2):71.
17. Evans RL, Bishop DS, Haselkorn JK. Factors predicting satisfactory home care after stroke. *Archives of Physical Medicine and Rehabilitation*. 1991 Feb 1;72(2):144-7.
18. Draper BM, Poulos CJ, Cole AM, Poulos RG, Ehrlich F. A comparison of caregivers for elderly stroke and dementia victims. *Journal of the American Geriatrics Society*. 1992 Sep;40(9):896-901.
19. Anderson CS, Linto J, Stewart-Wynne EG. A population-based assessment of the impact and burden of caregiving for long-term stroke survivors. *Stroke*. 1995 May;26(5):843-9.
20. Das S, Hazra A, Ray BK, Ghosal M, Banerjee TK, Roy T, Chaudhuri A, Raut DK, Das SK. Burden among stroke caregivers: results of a community-based study from Kolkata, India. *Stroke*. 2010 Dec 1;41(12):2965-8.
21. Jaracz K, Grabowska-Fudala B, Górna K, Kozubski W. Caregiving burden and its determinants in Polish caregivers of stroke survivors. *Archives of medical science: AMS*. 2014 Oct 27;10(5):941.
22. Kotila M, Numminen H, Waltimo O, Kaste M. Depression after stroke: results of the FINNSTROKE Study. *Stroke*. 1998 Feb;29(2):368-72.
23. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *Journal of health and social behavior*. 1983 Dec 1:385-96.
24. Santos EB, Rodrigues RA, Marques S, Pontes-Neto OM. Perceived stress in elderly stroke survivors after hospital discharge to home. *Revista da Escola de Enfermagem da USP*. 2015 Oct;49(5):797-803.