



## CORRELATION BETWEEN FUNCTIONAL INDEPENDENCE OF STROKE PATIENT AND QUALITY OF LIFE OF INFORMAL CAREGIVER

**Sharmila Dudhani** Associate professor, SDM college of Physiotherapy, Dharwad

**Anjali Shetty\*** 301, Lokratna, Pushtikar Society, Jogeshwari west Mumbai 400102 \*Corresponding Author

**ABSTRACT** **Background and objectives:** Stroke survivors disabilities and caregiver's quality of life has an impact on the care provided to the stroke patients. Thus the objective of the study is to correlate functional status of stroke patients with the quality of life of caregivers.

**Method:** stroke patient's functional ability was evaluated by therapist with Barthel Index. Caregiver's quality of life was measured by using WHOQOL-BREF. The data collected from patients BI and caregivers WHOQOL-BREF score was sent for further analysis.

**Results:** There was a significant positive correlation of Barthel Index total score with all domains of WHOQOL BREF except social domain wherein it was positively correlated but not significant enough.

**Conclusion:** There was positive correlation of Barthel Index scores and the domains of quality of life of caregiver.

**KEYWORDS :** Stroke, Barthel Index, Caregiver, QOL

### INTRODUCTION:

Cerebrovascular accidents (CVAs) or strokes, is a serious healthcare problem in terms of their human and economic toll and can be a devastating and physically debilitating disease. Its global prevalence in general population ranges from 0.5% to 0.7%. South Asia comprising of eight countries including India constitutes 22% of the world's population and accounts for about 40% of global stroke deaths.<sup>1</sup>

Stroke leads to motor and sensory impairments. Many patients will acquire status "disabled", which is likely to attract a multitude of negative evaluations, extending into different spheres of life including family relationships and work.<sup>3</sup>

Functional ability is defined as an individual's ability to execute the usual activities that people do in order to meet basic needs, fulfill social roles, and protect their health, (Haas, 1999). Barthel Index is a 10-item ordinal scale that is commonly used to measure functional independence of the patient in the domains of personal care and mobility. Barthel Index has been shown to have fair to moderate reliability.<sup>4</sup> Most of the informal caregivers subordinate their lives in caring for the patient so it becomes difficult to part them away from the patient's suffering.<sup>4,5</sup>

Quality of Life (QOL) -Defined as per the World Health Organization Quality of Life Group (WHOQOL) as the "individuals understanding of their position in life related to their goals, expectations, standards, and concerns, culture and value systems in which they live"<sup>6</sup> One such scale for assessing the quality of life is the generic WHOQOL-BREF which is an abbreviated version of the WHOQOL100. It is a widely used tool with proven internal consistency reliability, content, discriminant validity.<sup>7,8</sup>

Effect on caregiver's quality of life will have an impact on patient's care which in turn may affect the patient's participation or post stroke recovery. Many studies have shown that there is stress in the caregivers of stroke patients; this stress has an impact on the patient recovery indirectly. Thus the need arises to study the quality of life of caregivers and to see if there is any correlation with functional status of stroke patient.

**Materials and method:** Ethical clearance was obtained from institutional ethical committee, SDM college of Medical Sciences and hospital, Dharwad. Stroke patients and their caregivers meeting the inclusion and exclusion criteria and willing to participate in the study were included. Stroke survivors with first ever stroke in sub-acute and chronic stage, who were independent prior to stroke of either gender were included in the study. Caregivers of stroke patient: More than 18 years of age, with no previous caregiving experiences, spending more than 6 hours per day with the patient were included in the study. Also caregiver should not have any neurological or psychiatric conditions/ musculoskeletal conditions or handicapped

Barthel Index and WHOQOL-BREF was administered on the patient and their caregivers respectively. The data collected from both Barthel Index and WHOQOL-BREF was then sent for statistical analysis.

### RESULTS:

**Table 1:** Distribution of stroke subjects based on age, gender, side of affection and duration of stroke

Age groups	No of patients	% of patients
18-45yrs	12	40.00
>=46yrs	18	60.00
Total	30	100.00
Mean age	50.73	
SD age	13.29	
Male	21	70.00
Female	9	30.00
Left side	11	36.67
Right side	19	63.33
Mean duration	12.60	
SD duration	7.55	

**Table2:** Distribution of care givers based on age, gender, level of education and employability

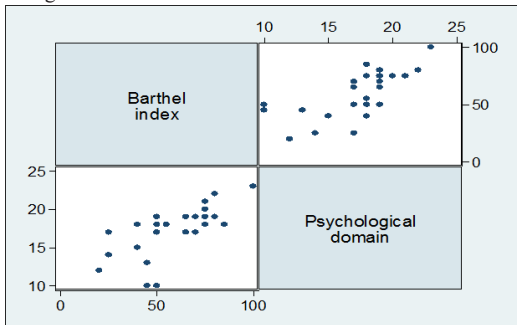
Age groups	No of caregivers	% of caregivers
18-35yrs	10	33.33
>=36yrs	20	66.67
Total	30	100.00
Mean age	44.17	
SD age	14.42	
Male	8	26.67
Female	22	73.33
Illiterates	13	43.33
Graduate	17	56.67
Employed	10	33.33
Not employed	20	66.67

**Table 3:** Correlation between total Barthel index scores with Quality of life, satisfaction, physical domain, psychological domain, social domain and environment domain scores by Karl Pearson's correlation coefficient method

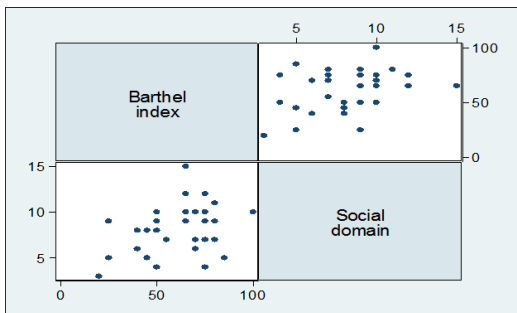
Variables	Correlation between total Barthel index scores with		
	r-value	t-value	p-value
Quality of life	0.4020	2.3234	0.0276*
Satisfaction	0.2846	1.5710	0.1274
Physical domain	0.4051	2.3449	0.0264*
Psychological domain	0.7000	5.1862	0.0001*
Social domain	0.3347	1.8793	0.0707
Environment domain	0.4937	3.0040	0.0056*

\*p<0.05

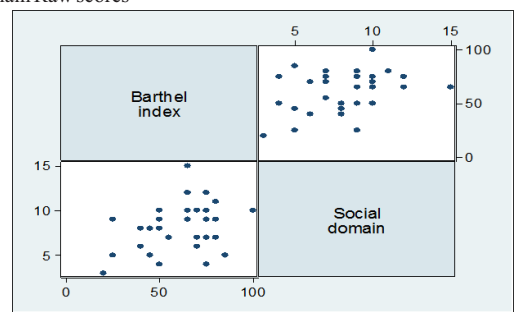
**Figure 1:** Correlation between Barthel Index total score with Psychological domain raw score



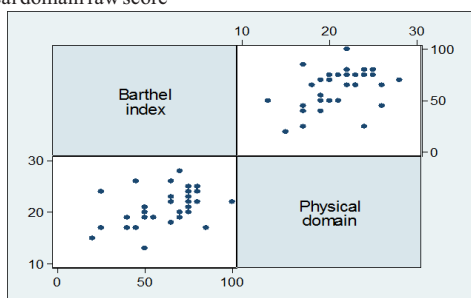
**Figure 2:** Correlation between Barthel Index Total score with Social Domain Raw score



**Figure 3:** Correlation Between Barthel Index and Environmental domain Raw scores



**Figure 4:** Correlation Between Barthel Index total scores with Physical domain raw score



**DISCUSSION:**

Table 1 shows the age wise distribution of stroke survivors. The mean age of subjects having stroke was 50.73 years with SD of 13.29. The mean post stroke duration in present study was 12.60 months±7.55. According to Table 2 which shows distribution of caregiver based on age, gender, level of education and employability. The mean age of all the caregivers as a whole was 44.17 years and the SD was 14.42. 22 participants (73.33%) were female caregivers and 8(26.67%) participants were male caregivers.17 (56.67%) caregivers were graduates and 13(43.33%) were illiterates.

Table 3 shows Correlation between total Barthel index scores with WHOBREF scores by Karl Pearson's correlation coefficient method. It was found that total scores of Barthel index used to measure the functional status of stroke patients were positively correlated with all domains of WHOQOL-BREF.

Our findings are in agreement with previous studies that have found that when a change occurs in the physical, social, or mental function of the stroke survivor, it negatively influences the strain experienced by the caregiver but it is in contrast to a study that did not support findings for the effect of stroke survivors Functional status on stress or strain of the caregiver.<sup>9</sup> This may be because their findings were based on data from stroke survivors who had relatively high levels of physical function, which would have influenced these results.

The Barthel Index scores were highly correlated with the Psychological domains, followed by environmental domain followed by physical domain followed by overall QOL of life followed by social domain and satisfaction.

More than functional difficulties as stated in a study that Family caregivers' life satisfaction was associated with patients' feelings and emotion dimensions only. Hence we can say that though functional status positively correlated with generic life satisfaction question of WHOQOL-BREF, however it was less significant than other domains.<sup>10</sup>

According to the WHOQOL-BREF, the social relations domain relates to personal Relationships, social support and sexual activity. Social domain has components like sexual activity, which most of the caregivers were not comfortable to answer and some were not the partners of stroke patient and were unmarried. This is in support that the scores positively correlated to social domain but were not significant enough. High levels of social support were associated with faster and more extensive recovery of functional status after stroke.<sup>11</sup>

The Barthel index scores of patient show positive correlation with the psychological domain of QOL of caregiver. The psychological domain relates to body image and appearance, feelings, self-esteem, spirituality, religion and personal beliefs, thinking, learning, memory and. Our findings are supported by a study done on self-reported emotional distress and quality of life which affirmed that the patient's characteristics of Functional difficulties had an effect on the anxiety and emotional distress of caregivers.<sup>13</sup>

Our results of significant correlation with psychological domain was also seen in a study that assessed the correlation of functional state of patients with quality of life of caregiver of stroke patients using SF36<sup>14</sup>. The Barthel index scores were significantly correlated to environmental domain of QOL of caregiver. The environmental domain in WHOQOL-BREF consists of the following components like improvement of financial resources, freedom, physical safety and security, accessibility and quality of social and health services; domestic environment, opportunities for acquiring new information and skills, leisure, physical environment and transport.<sup>12</sup>

There could be several factors like inaccessible pathways. This makes it difficult for stroke patients to ambulate or move their wheelchair independently. There is lack of disability friendly pathways or ramps outside home environment in India. The fear of fall, lack of inadequate strength of the patient makes him dependent on the caregiver.

Accessibility to toilets is another environmental factor which majorly affects both stroke patient and their caregiver.<sup>15</sup> as most of the caregivers in our study were females they may find difficulty in lifting and transferring the patients.

Barthel scores in our study also correlated with physical domains of quality of life of caregiver. Dependency of stroke patient may disturb the sleep and rest cycles of the caregivers due to constant care that has to be provided to the stroke patients. Hence we conclude that functional status of patient has a positive correlation with the quality of life of caregiver.

**REFERENCE:**

- 1). Salma N. Khan, Ejaz Ahmed Vohra Risk factors for stroke: A hospital based study. Pakistan J Med Sci 2007;23(1):17–22.
- 2). O'Sullivan, S. B., & Schmitz, T. J. (2007). *Physical rehabilitation* (5th ed.) Philadelphia, PA: F.A. Davis.
- 3). Anderson, R. (1992). *The aftermath of stroke: The experience of patients and their families*. New York, NY, US: Cambridge University Press.
- 4). Mahoney, F., & Barthel, D. (1965). Functional evaluation: The Barthel Index. Maryland State Medical Journal, 14, 56-61. Used with permission.
- 5). Anderson CS, Linto J, Stewart-Wynne EG. ( May 1, 1995)A population based assessment of the impact and burden of care-giving for long-term stroke survivors. Stroke. 1995;26:843–849
- 6). Chumler NR, Rittman M, Van Puymbroeck M, Vogel WB, Qin H. The sense of

- coherence, burden, and depressive symptoms in informal caregivers during the first month after stroke. *Int J Geriatr Psychiatry* 2004; 19(10): 944–53. Erratum in: *Int J Geriatr Psychiatry* 2004; 19(11): 1113.
- 7) Skevington SM, Lotfy M, O'Connell KA, WHOQOL Group. *Qual Life Res.* 2004 Mar; 13(2):299-310.
  - 8) Buck D, Jacoby A, Massey A, Ford G. *Life After Stroke.* 2004;2004–11.
  - 9) Van Puymbroeck M, Rittman MR. Quality-of-life predictors for caregivers at 1 and 6 months poststroke: Results of path analyses. *J Rehabil Res Dev.* 2005;42(6):747–60.
  - 10) Baumann M, Couffignal S, Le Bihan E, Chau N. Life satisfaction two-years after stroke onset: the effects of gender, sex occupational status, memory function and quality of life among stroke patients (Newsqol) and their family caregivers (Whoqol-bref) in Luxembourg. *BMC Neurol.* 2012;1–11.
  - 11) Baumann M, Couffignal S, Le Bihan E, Chau N. Life satisfaction two-years after stroke onset: the effects of gender, sex occupational status, memory function and quality of life among stroke patients (Newsqol) and their family caregivers (Whoqol-bref) in Luxembourg. *BMC Neurol.* 2012;1–11.
  - 12) The WHOQOL Group. *Whoqol-Bref: Introduction , Administration , Scoring and Generic Version of the Assessment.* Program Ment Heal. 1996;(December):16.
  - 13) Fatoye FO, Komolafe MA, Adewuya AO, Fatoye GK. Emotional distress and self-reported quality of life among primary caregivers of stroke survivors in Nigeria. *East Afr Med J.* 2006;83(5):271–9.
  - 14) Costa TF da, Gomes TM, Viana LR de C, Martins KP, Costa KN de FM. Acidente vascular encefálico: características do paciente e qualidade de vida de cuidadores. *Rev Bras Enferm [Internet].* 2016;69(5):933–9.
  - 15) Urimubenshi G, Rhoda A. Environmental barriers experienced by stroke patients in Musanze district in Rwanda : a descriptive qualitative study. 2011;11(3).