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Emotional stability and activities of daily living among cerebrovascular accident survivors

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Abstract:
Stroke (cerebrovascular accident) is a major global health concern resulting in considerable mortality and enduring impairments. Therefore, it is of interest to assess the correlation between emotional stability and performance of activities of daily living (ADL) among stroke patients attending a tertiary care centre, while investigating related socio-demographic and clinical factors. Findings indicated a significant negative correlation ($r = -0.33$, $p = 0.01$), showing that higher emotional stability is associated with better ADL performance. Thus, data shows that emotional stability is significantly associated with functional independence in stroke patients.

Keywords: Stroke, emotional stability, activities of daily living (ADL), functional impairment, rehabilitation

Background:
Stroke also known as cerebrovascular accident (CVA), remains a leading global health concern, affecting approximately 15 million individuals worldwide annually and accounting for nearly 10% of all global deaths **[1].** This high burden is particularly pronounced in low and middle income countries, where stroke related deaths and disability adjusted life years continue to rise sharply. Strokes occur when an interruption of blood flow either ischaemic or haemorrhagic results in brain tissue damage, often leading to significant physical, cognitive and emotional impairments. Among survivors, up to 75% experience long term disability affecting their ability to return to work and maintain independence **[1].** A Swedish cohort found that 60% of patients exhibited dependency in personal ADLs within two days of admission, predicting continued impairment at three and twelve months post stroke **[2].** Post stroke depression (PSD) affects between 18% and 33% of survivors, with some estimates as high as 50%, particularly within the first three months after stroke onset. PSD is influenced by multiple factors including lesion location, female sex, pre-existing psychiatric history and functional impairment severity **[3].** Recent evidence shows that PSD not only affects mood but also mediates the relationship between ADL limitations and lower health related quality of life **[4].** Emotional disturbances following stroke extend beyond depressive symptoms: anxiety, irritability, apathy, emotional labiality and post -traumatic stress symptoms are also commonly observed **[5].** A notable meta-analysis including over 117,000 individuals across 279 studies found a high prevalence of non-motor outcomes such as fatigue, sleep disturbance and reduced social participation, with anxiety and depression ranking among the most frequent **[6].** Emotional labiality affects approximately 20% of stroke survivors **[7].** Therefore, it is of interest to evaluate the emotional stability and activities of daily living among CVA patients attending a tertiary care centre and to examine their correlation and association with selected socio-demographic and clinical variables.

Methodology:
A quantitative, descriptive cross sectional design was employed. The study was conducted in the medical wards of Rajiv Gandhi Government General Hospital, Chennai. A convenience sample of 60 CVA patients aged 35 years and above, meeting inclusion criteria and consenting to participate was recruited. Data collection tools included a socio-demographic questionnaire, clinical variables checklist, the Big Five Personality Test (for emotional stability assessment) and the Activities of Daily Living Questionnaire. Content validity was ensured through expert review and reliability was confirmed with Cornbrash's alpha coefficients ranging from 0.78 to 0.85. Ethical approval was obtained from the Institutional Ethics Committee and participants' rights and confidentiality were protected. A pilot study was conducted to refine tools and procedures. Data were coded and analysed using SPSS, employing descriptive statistics and chi square tests to explore associations at the $p < 0.05$ significance level.

Results:
The majority of participants were male (65%), aged 46–55 years (40%), and had ischaemic stroke (65%). Emotional stability levels were moderate in 66.67% and high in 25% of patients. The overall mean emotional stability score was 97.45 (64.97%) out of 150, with agreeableness scoring highest (67.43%) and neuroticism lowest (58.90%) **(Table 1)**. ADL impairment was moderate in 53.33%, mild in 30%, and severe in 16.67% of participants **(Table 2)**. A significant negative correlation was observed between emotional stability and ADL impairment ($r = -0.33$, $p = 0.01$), indicating that higher emotional stability was associated with better ADL performance **(Table 3)**. Emotional stability was significantly associated with age, residence, and family type, whereas ADL impairment was associated with age, length of hospital stay, and mobility status.

Table 1: Percentage of emotional stability score among cerebrovascular accident survivors (n = 60)

S. No.	Statement	Max score	Mean	SD	% of mean score
1	Am the life of the party	5	3.75	1.5	75.00%

2	Feel little concern for others	5	2.37	1.1	47.40%
3	Get stressed out easily	5	3.33	1.19	66.60%
4	Have a rich vocabulary	5	3.57	1.21	71.40%
5	Am interested in people	5	3.37	1.28	67.40%
6	Leave my belongings around	5	3.05	1.05	61.00%
7	Have difficulty understanding abstract ideas	5	3.53	1.26	70.60%
8	Feel comfortable around people	5	4.32	1.16	86.40%
9	Worry about things	5	3.52	1.1	70.40%
10	Keep in the background	5	3.3	1.28	66.00%
11	Start conversations	5	2.97	1.16	59.40%
12	Am not interested in other people's problems	5	2.92	1.17	58.40%
13	Get others done right away	5	3.1	1.13	62.00%
14	Have excellent ideas	5	3.72	1.18	74.40%
15	Have a short heart	5	3.5	1.19	70.00%
16	Often forget to put things back in their proper place	5	3	1.19	60.00%
17	Get upset easily	5	3.13	1.19	62.60%
18	Do not have a good imagination	5	2.68	1.13	53.60%
19	Talk to a lot of different people at parties	5	3.02	1.16	60.40%
20	Am not really interested in others	5	2.42	1.23	48.40%
21	Like order	5	3.8	1.1	76.00%
22	Do not like to draw attention to myself	5	3.78	1.19	75.60%
23	Take time out for others	5	2.73	1.16	54.60%
24	Shirk my duties	5	2.78	1.19	55.60%
25	Feel others' emotions	5	3.47	1.03	69.40%
26	Follow a schedule	5	2.7	1.06	54.00%
27	Get irritated easily	5	3	1.18	60.00%
28	Am quiet around strangers	5	3.23	1.32	64.60%
29	Am exacting in my work	5	3.87	1.21	77.40%
30	Feel often blue	5	3.53	1.36	70.60%
	Total	**150**	**97.45**	**12.68**	**64.97%**

Table 2: Level of ADL impairment score among cerebrovascular accident survivors (n = 60)

Level of impairment ADL score	No. of survivors	%
Mild	18	30.00%
Moderate	30	53.33%
Severe	12	16.67%
Total	60	100.00%

Table 3: Correlation between emotional stability and ADL impairment score (n = 60)

Correlation between	Mean ± SD	Karl Pearson Correlation coefficient
Emotional stability score vs Impairment score	97.45 ± 12.68 vs 38.28 ± 10.86	r = −0.33, p = 0.01 (S) — Significant negative fair correlation

Discussion:

The present study found that the majority of CVA survivors showed moderate emotional stability (66.67%) and moderate ADL impairment (53.33%). These findings are consistent with a prospective observational study involving 127 first ever ischaemic stroke patients, which showed a biphasic pattern of depression prevalence peaking at two weeks (37.5%) and rising again at six months (30.8%), suggesting that approximately 62.5% of survivors maintained relatively stable emotional functioning **[8]**. The disparity in the high emotional stability group (25%) compared with expected proportions may be attributed to different assessment methodologies and timing of evaluation. A risk prediction model for ADL dysfunction derived from 1,131 stroke survivors in the China Health and Retirement Longitudinal Study revealed that 57.3% exhibited ADL dysfunction, defined as inability to independently complete any basic ADL **[9]**. This closely mirrors the present study's finding of 53.33% moderate ADL impairment. In a cross sectional study of 67 stroke patients attending a Seoul outpatient clinic, health related quality of life showed a significant difference by living arrangement ($t = 2.50$, $p = 0.015$) and was significantly correlated with both ADLs ($r = -0.59$, $p < 0.001$) and mental health ($r = -0.41$, $p < 0.001$) **[10]**. A facility based cross sectional study among 150 stroke survivors in Ethiopia found that increasing age predicted severe BADL impairment (AOR = 1.10 per year, $p < 0.001$) and initial stroke severity predicted IADL limitations (AOR = 7.33, $p = 0.031$) **[11]**. These results mirror the present study's finding that age and mobility status are key determinants of post stroke functional impairment. The significant negative correlation ($r = -0.33$, $p = 0.01$) between emotional stability and ADL impairment confirms that better emotional health supports functional recovery and that the two domains are bidirectional linked**.** Neuromuscular electrical stimulation applied as an adjunct to conventional rehabilitation has been shown to significantly improve ADL performance post stroke **[12],** while structured home based rehabilitation following intensive inpatient care can preserve motor function and reduce caregiver burden **[13].** These findings reinforce the clinical value of integrated rehabilitation addressing both emotional and physical domains for CVA survivors. Limitations include a small convenience sample, single centre cross sectional design precluding causal inference and possible selection bias.

Conclusion:
Emotional stability is significantly associated with functional independence among stroke survivors. Integrating emotional assessment and psychological support into rehabilitation may enhance functional recovery. Holistic nursing care addressing emotional and physical needs is essential to improve independence and quality of life.

Declarations:
Ethical approval: Approval was obtained from the Institutional Ethics Committee and written informed consent was obtained from all participants

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