Body Cathexis among Stroke Survivors: A Cross-Sectional Study

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Abstract

Background   Stroke results in functional dependence and poor quality of life. Body cathexis is a measure of one's perceived body image. Stroke survivors often experience stress, anxiety, and disturbances in body image.

Objectives   The objective of the study was to explore the body cathexis of stroke survivors.

Materials and Methods   The cross-sectional survey was conducted at two rural community settings of Kozhikode district, Kerala. Using a purposive sampling, 151 stroke survivors were recruited.

Results   The mean age of the participants was 64.58 years. About 53.6% participants were males and majority of the participants had ischemic stroke (76.2%). About one-third of participants had moderately severe disability. Among the participants, the body cathexis scale (BCS) ranged from 176 to 202. The overall mean (standard deviation) BCS score was 190.09 (5.04). Satisfaction or dissatisfaction toward each body part was analyzed and found that significant areas of dissatisfaction were energy level (98%), wrist (88.1%), elimination (86.1%), fingers (76.2%), and arms (73.5%). The BCS scores compared with the sides of lesion, gender differences, and duration of stroke showed no significant differences in the mean ($p>0.05$).

Conclusions   Stroke survivors are found to experience disturbances in body image. Low energy level, poor functioning of upper extremities, and disturbed elimination patterns add primarily to body image disturbances. Body cathexis does not differ with side of lesion, gender differences, and duration of stroke.

Keywords
► stroke
► body cathexis
► body image

Introduction

Globally, stroke is a prominent cause of adult mortality and morbidity and it results in functional dependence and poor quality of life.[1] Stroke is the second commonest cause of death and of disability, as measured by disability-adjusted life-years.[2] In India, incidence of stroke is higher than that of western countries.[3] According to a recent systematic review, the annual incidence of stroke in India ranges from 152 to 262 cases and the prevalence rate ranges from 44.29 to 559 cases, per 1 lakh population.[4]

Body cathexis, a concept of body satisfaction, is defined as "the degree of satisfaction or dissatisfaction one feels towards various parts and aspects of his or her own body."[5] It is a measure of one's perceived body image and an integral component of one's self-concept. For stroke survivors, a sudden, unexpected, unwanted, and uncontrollable change in the body is often difficult to accept, and they often experience

stress, anxiety, social isolation, and depression.[6,7] Physical dysfunction caused by stroke could adversely affect the body satisfaction and acts as a major reason for poor psychosocial well-being. Life after a stroke is described as "being plucked and planted somewhere else."[7]

Kitzmüller et al found that stroke survivors perceive their body as unfamiliar, unreliable, and fragile.[8] Stroke survivors were found to intentionally turn inward and keep themselves away from relationships and external activities. In a cross-sectional study, Keppel and Crowe explored stroke survivors' self-esteem and perception of their own body image, both of which were significantly negatively affected. The authors found that poor body image contributes to reduced self-esteem and depression among stroke survivors.[9] It also hinders the patient's adaptability to accept permanent changes, leading to frustrations.[10,11]Addressing these factors is highly essential in clinical practice as poor psychological well-being can impede effective rehabilitation, delay recovery process, and can even adversely affect the caregiver health.[12]

Perception of poor body image is major issue among stroke survivors; however, this is often overlooked in clinical practice. Evaluating body cathexis and envisaging strategies to improve the self-concept can enhance coping, promote self-identity, foster acceptance, and enhance rehabilitation process. However, there is a paucity of Indian studies on impact of stroke on body cathexis. Hence, we aimed to explore the body cathexis of patients with stroke.

Materials and Methods

We adopted a cross-sectional descriptive survey design to explore the body cathexis of stroke survivors. One-hundred and fifty-one participants from two selected rural areas (Kunnamangalam and Koduvally) of Kozhikode district, Kerala, India, (►Fig. 1) were selected using purposive sampling technique. The sample size was decided statistically. The study inclusion criteria were (1) those who had stroke within past 1 year, (2) age 25 to 80 years, (3) those with an ischemic or hemorrhagic unilateral stroke, and (4) modified Rankin Scale (mRS) score of 2, 3, and 4. The patients in the community were identified with the help of physicians, physiotherapists, palliative care nurses, and accredited social health activist (ASHA) workers.

Data Collection Instruments

For data collection, we used a short demographic and clinical data questionnaire, mRS, and body cathexis scale (BCS).

Demographic and Clinical Data Questionnaire
The demographic and clinical data questionnaire had 10 items such as age in years, gender, marital status, type of family, education, occupation prior to stroke, economic status, type of stroke, duration of stroke, and side of lesion. An additional clinical data on disability level was evaluated using the mRS.
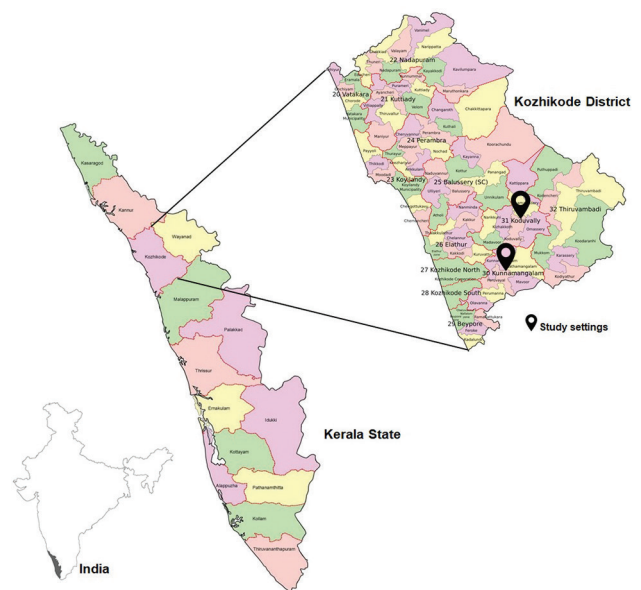

Fig. 1 Study setting.

Modified Rankin Scale
Degree of disability and dependency were measured by using mRS. The Rankin Scale was modified to its current form by Charles Warlow and team and is a widely used scale in research and clinical practice.[13-15]This seven-level categorical scale has score ranges from 0 to 6, with zero being no symptoms and 6 being death. The mRS has a reported test–retest reliability score of 0.81 to 0.95.[16]

Body Cathexis Scale
The perceived body image was measured using "Secord and Jourard's body cathexis scale."[17] It is a 46-item inventory scored on a five-point Likert scale. The tool measures an individual's satisfaction or dissatisfaction with body parts. The score of 1 and 2 for each item refers to some extent of dissatisfaction, 4 and 5 denotes satisfaction with each body parts, and a score of 3 denotes neutral response. The sum of ratings of 46 items provides the total BCS score. The maximum possible score for this tool is 230 and minimum score is 46. A higher score on BCS shows the higher satisfaction with body parts. The BCS exhibits excellent psychometric properties with a test–retest reliability score of 0.87.[18] This tool is widely used to assess body image of patients with chronic illnesses.[9,19-21]

Statistical Analysis
Statistical Package for Social Sciences (SPSS) software, version 18, was utilized to analyze the data. Data were analyzed using descriptive and inferential statistics, and summarized in terms of frequency, percentage, mean, and standard deviation (SD). A comparison of mean values of body image with variables such as gender, side of the lesion, and duration of stroke were done using independent t-test. Acceptable significance level was taken as $p < 0.05$.

Results

Demographic and Clinical Characteristics

Our study sample consisted of 151 participants with a mean (SD) age of 64.58 (10.33) years. The minimum age of participants was 28, and the maximum age was 80 years. In the study population, eighty-one (53.6%) participants were males and 70 (46.4%) participants were females. The majority had an ischemic stroke (76.2%), and 114 (75.5%) participants had a left-sided lesion. Seventy-eight (51.7%) participants had suffered a stroke within a period of less than or equal to 6 months. The degree of disability and dependence using mRS showed that 50 (33.1%) and 51 (33.8%) participants had a score of 2 and 3, respectively. About 50 (33.1%) participants had a moderately severe disability (mRS score of 4). The demographic and clinical characteristics of the study participants are summarized in ►Table 1.

Body Cathexis Scale Scores

An overall score for the BCS was obtained by adding the individual item scores. Among the participants, the body cathexis score ranged from 176 to 202. The participants had an overall mean (SD) score of 190.09 (5.04), indicating better satisfaction with overall body image. However, stroke survivors were found to have poor satisfaction in certain areas; hence, an additional item-wise analysis of BCS was performed. Frequency and percentage of responses regarding satisfaction or dissatisfaction toward each body part were analyzed (►Table 2). The result shows that 72.2% (109) participants were not satisfied with their hands. While evaluating the finger function, almost 76.2% (115 participants) were dissatisfied. About 88.1 and 73.5% were dissatisfied with their wrists and arms, respectively. Elimination is another factor that affected body image to a large extend, as 86.1% were not satisfied with elimination. The majority (98%) felt a decrease in energy levels. The major five areas of dissatisfaction among stroke survivors were found to be energy level (98%), wrist (88.1%), elimination (86.1%), fingers (76.2%), and arms (73.5%). Additionally, 137(90.7%) rated their satisfaction with health as neutral. However, it was interesting to note that almost 95.4% were satisfied with their face and voice.

Comparison of the Mean BCS Scores with Selected Variables

The BCS scores were compared with the gender, duration of stroke, and side of the lesion. The variables were categorized, and an independent sample "t" test was performed to evaluate the mean difference in BCS scores between the groups. However, the p-value obtained was greater than 0.05 (►Table 3). Hence, it could be inferred that the perception of body image is independent of factors like the gender, duration of a stroke, and side of the lesion.

Discussion

Stroke results in a sudden, unexpected change in the body. These changes in the body are often difficult to accept and may influence one's perception of body image. The main objective of this study was to identify body cathexis of stroke survivors. Body cathexis, "the degree of feeling of satisfaction or dissatisfaction with the various parts or processes of

Table 1 Demographic and clinical characteristics of the participants (n = 151)

Variables	Frequency (%)/Mean (SD)[a]
Age (in years)	64.58 (10.33)[a]
Gender	
Male	81 (53.6)
Female	70 (46.4)
Marital status	
Unmarried	1 (0.7)
Married	115 (76.2)
Widow/Widower	35 (23.2)
Type of family	
Nuclear	32 (21.2)
Joint	10 (6.6)
Extended	109 (72.2)
Education	
Primary school	65 (43.0)
Upper primary	57 (37.7)
High school	25 (16.6)
Pre-degree/diploma	3 (2.0)
Degree and above	1 (0.7)
Occupation prior to stroke	
Government employee	8 (5.3)
Skilled worker	20 (13.2)
Semi-skilled worker	40 (26.5)
Unemployed	83 (55)
Economic status	
Above poverty line (APL)	69 (45.7)
Below poverty line (BPL)	82 (54.3)
Type of stroke	
Ischemic	115 (76.2)
Hemorrhagic	36 (23.8)
Duration of stroke (in months)	
≤ 6	78 (51.7)
> 6	73 (48.3)
Side of lesion	
Left	114 (75.5)
Right	37 (24.5)
mRS score	
2	50 (33.1)
3	51 (33.8)
4	50 (33.1)

Abbreviations: MRS, modified Rankin Scale; SD, standard deviation.
[a]Denotes mean (SD).

Table 2 Item-wise frequency and percentage responses in BCS (*n* = 151)

Item no	Items	Not satisfied (Scores 1 or 2)	Neutral (Score 3)	Satisfied (Scores 4 or 5)
1	Hair	–	–	151 (100%)
2	Facial complexion	–	–	151 (100%)
3	Appetite	–	11 (7.3%)	140 (92.7)
4	Hands	109 (72.2%)	42 (27.8%)	–
5	Distribution of body hair	–	–	151 (100%)
6	Nose	–	–	151 (100%)
7	Fingers	115 (76.2%)	36 (23.8)	–
8	Elimination	133 (86.1%)	10 (6.6%)	8 (5.3%)
9	Wrist	133 (88.1%)	18 (11.9%)	–
10	Breathing	–	–	151 (100%)
11	Waist	–	–	151 (100%)
12	Energy level	148 (98%)	3 (2%)	–
13	Back	–	14 (9.3%)	137 (90.7%)
14	Ears	–	–	151 (100%)
15	Chin	–	–	151 (100%)
16	Exercise	85 (56.3%)	48 (31.8%)	18 (11.9%)
17	Ankles	68 (45%)	27 (17.9%)	56 (37.1%)
18	Neck	–	–	151 (100%)
19	Shape of head	–	–	151 (100%)
20	Body build	–	14 (9.3%)	137 (90.7%)
21	Profile	–	71 (47%)	80 (53%)
22	Height	–	–	151 (100%)
23	Age	–	–	151 (100%)
24	Width of shoulders	1 (0.7%)	7 (4.6%)	143 (94.7
25	Arms	111 (73.5%)	40 (26.5	–
26	Chest	–	–	151 (100%)
27	Eyes	–	–	151 (100%)
28	Digestion	7 (4.6%)	20 (13.2%)	124 (82.1%)
29	Hips	38 (25.2%)	10 (6.6%)	103 (68.2%)
30	Skin texture	–	–	151 (100%)
31	Lips	–	–	151 (100%)
32	Legs	30 (19.9%)	–	121 (80.1%)
33	Teeth	–	–	151 (100%)
34	Forehead	–	–	151 (100%)
35	Feet	7 (4.6%)	33 (21.9%)	111 (73.5%)
36	Sleep	84 (55.6%)	–	67 (44.4%)
37	Voice	7 (4.6%)	–	144 (95.4%)
38	Health	14 (9.3%)	137 (90.7%)	–
39	Sex activities	1 (0.7%)	6 (4%)	144 (95.4%)
40	Knees	38 (25.2%)	10 (6.6%)	103 (68.2%)
41	Posture	38 (25.2%)	10(6.6%)	103 (68.2%)
42	Face	7 (4.6%)	–	144 (95.4%)
43	Weight	6 (4%)	3 (2%)	142 (94%)
44	Sex (male or female)	–	–	151 (100%)
45	Back view of head	–	–	151 (100%)
46	Trunk	–	–	151 (100%)

Table 3 BCS scores with sides of the lesion, gender differences, and duration of stroke (n = 151)

Variable	Category	No. of participants	Percentage	Mean BCS score	Standard deviation	t-Value	p-Value
Gender	Female	70	46.4	190.39	5.30	0.66	0.50
	Male	81	53.6	189.84	4.83		
Duration of stroke (in months)	≤ 6	78	51.7	190.42	4.88	0.83	0.37
	> 6	73	48.3	189.74	5.22		
Side of lesion	Left	114	75.5	190.05	5.16	0.17	0.86
	Right	37	24.5	190.22	1.71		

Abbreviation: BCS, body cathexis scale.

the body," was measured using the BCS.[17] The patients were asked to rate on a five-point scale, their perception of satisfaction (or dissatisfaction) toward the different parts, or functions of their body. The mean age of the participants in the present study was 64.58 years. The majority of participants were males (53.6%), had an ischemic stroke (76.2%), and with left-sided brain lesion (75.5%). The duration of stroke was less than or equal to 6 months for 51.7% participants. The overall mean (SD) BCS scores was 190.09 (5.04). Major areas of dissatisfaction among stroke survivors identified were energy level (98%), wrist (88.1%), elimination (86.1%), fingers (76.2%), and arms (73.5%). The perception of body image was not affected by factors like the gender, duration of a stroke, and side of the lesion.

Our study found that stroke survivors experience disturbances in the perception of body image. These findings are supported by several qualitative studies and a couple of cross-sectional studies. Kitzmüller et al reported that participants perceived their body to be unfamiliar, unreliable, and fragile, and their sense of self is often threatened by negative judgments from others.[8] Another study by Timothy et al found that stroke survivors experience problems with self-identity and this could result in dissatisfaction with life, anxiety, and negative emotions.[22] In a cross-sectional study, Keppel and Crowe explored the stroke survivors' self-esteem and perceptions of body image, which were found to be significantly negatively affected. The poor body image was found to be related to low self-esteem. Stroke patients were found to exhibit social withdrawal due to an increased sense of vulnerability.[9]

It was noteworthy to observe that there was a high variation among satisfaction with the upper and lower extremities. Participants were found to be more dissatisfied with their upper limb and its function. This might be due to the fact that upper limb hemiparesis causes disturbances in performing the activities of daily living (ADL) like eating, brushing, washing, bathing, grooming, and in performing tasks like reaching, grasping, and manipulating. These findings concur with the findings of Kwakkel et al, who described that upper limb hemiplegia was prevalent in 80% of stroke survivors after stroke.[23] On the other hand, in the present study, all participants were satisfied with body parts that are not directly involved in ADL such as hair, face color, distribution of body hair, ears, nose, eyes, chin, neck,

shape of the head, back view of head, forehead, lips, teeth, trunk, sex, skin texture, height, and their age.

Patients should be given chances to reflect on their own body, their experiences, and perceptions, so as to promote self-identity and acceptance. Redefining of self-identity is necessary to cope up with the disability caused due to stroke. Early identification and managing problems with self-image could enhance their psychosocial well-being and aid in successful rehabilitation. Hence, the assessment of body image could be considered during stroke rehabilitation.

Study Strengths and Limitations

The study was undertaken as a rural community-based study. Most of the studies addressing body image of stroke patients were qualitative in nature,[8,22,24] and hence, to have complementary quantitative evidence, we undertook a cross-sectional survey.

There are certain limitations to our study. Body image could change over time in stroke. A longitudinal assessment of body image from acute to chronic stage of stroke is not addressed here, and exploration of which could have been meaningful. The study sample was recruited from a small community setting, which may limit the external validity of the study. Perception of body image could be related to other factors such as depression, anxiety, and self-esteem. However, we could not assess them during this study.

Conclusions

This study contributes to our understanding of body cathexis among stroke patients. Stroke survivors are found to experience disturbances in body image due to low energy levels, poor functioning of upper extremities, and disturbed elimination patterns. Poor body image can lead to anxiety, depression, poor quality of life, and can impede effective rehabilitation. Hence, assessing the body image and envisaging strategies could enhance the biopsychosocial well-being and rehabilitation outcomes of stroke patients.

Ethical Approval
The research proposal was reviewed and accepted by the institutional ethics committee of the Institute of Palliative Medicine, Kozhikode, Kerala. Administrative permission

was obtained from the panchayats to collect the data at patients' home. Data were collected from July 2019 to September 2019. Prior to the collection of data, we obtained written, informed consent from participants. We ensured the privacy, confidentiality, and anonymity of the participants during data collection, analysis, and reporting. This study is a part of community-based research on stroke.

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Conflict of Interest
None declared.

References

1 Feigin VL, Norrving B, Mensah GA. Global burden of stroke. Circ Res 2017;120(3):439–448

2 Johnson CO, Nguyen M, Roth GA, et al; GBD 2016 Stroke Collaborators. Global, regional, and national burden of stroke, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016. Lancet Neurol 2019;18(5):439–458

3 Banerjee TK, Das SK. Fifty years of stroke researches in India. Ann Indian Acad Neurol 2016;19(1):1–8

4 Kamalakannan S, Gudlavalleti ASV, Gudlavalleti VSM, Goenka S, Kuper H. Incidence & prevalence of stroke in India: a systematic review. Indian J Med Res 2017;146(2):175–185

5 Jourard SM, Secord PF. Body-cathexis and the ideal female figure. J Abnorm Psychol 1955;50(2):243–246

6 Kirkevold M, Kildal Bragstad L, Bronken BA, et al. Promoting psychosocial well-being following stroke: study protocol for a randomized, controlled trial. BMC Psychol 2018;6(1): 1210.1186/s40359-018-0223-6

7 Soumya S, George LS, Roach EJ, Noronha JA. Lived experiences of cerebro vascular accident (CVA) patients from selected physiotherapy units of Calicut, Kerala. Int J Neurol Neurosurg 2016; 8(2):39–46

8 Kitzmüller G, Häggström T, Asplund K. Living an unfamiliar body: the significance of the long-term influence of bodily changes on the perception of self after stroke. Med Health Care Philos 2013;16(1):19–29

9 Keppel CC, Crowe SF. Changes to body image and self-esteem following stroke in young adults. Neuropsychol Rehabil 2000; 10(1):15–31

10 Piotrowski MM. Body image after a stroke. Rehabil Nurs 1982;7(1):11–13

11 Pallesen H. Body and self-identity in stroke rehabilitation. Int J Phys Med Rehabil 2015;03(04):10.4172/2329-9096.1000287

12 Perna, R, Jessica, LMS. . Psychosocial issues associated with stroke. J Psychol Clin Psychiatry 2018;9(5):482–483

13 Farrell B, Godwin J, Richards S, Warlow C. The United Kingdom transient ischaemic attack (UK-TIA) aspirin trial: final results. J Neurol Neurosurg Psychiatry 1991;54(12):1044–1054

14 Lees KR, Bath PM, Schellinger PD, et al; European Stroke Organization Outcomes Working Group. Contemporary outcome measures in acute stroke research: choice of primary outcome measure. Stroke 2012;43(4):1163–1170

15 Sulter G, Steen C, De Keyser J. Use of the Barthel index and modified Rankin scale in acute stroke trials. Stroke 1999; 30(8):1538–1541

16 Banks JL, Marotta CA. Outcomes validity and reliability of the modified Rankin scale: implications for stroke clinical trials: a literature review and synthesis. Stroke 2007;38(3):1091–1096

17 Secord PF, Jourard SM. The appraisal of body-cathexis: body-cathexis and the self. J Consult Psychol 1953;17(5): 343–347

18 Tucker LA. Internal structure, factor satisfaction, and reliability of the body cathexis scale. Percept Mot Skills 1981;53(3): 891–896

19 Goodyear JP. The Measurement of Body Image in Stroke Patients. [Master's Theses]. Marquette Campus; 1978. Available at: https://epublications.marquette.edu/theses/3218.   Accessed Aug 24, 2020

20 Limbos MM, Joyce DP, Chan CK, Kesten S. Psychological functioning and quality of life in lung transplant candidates and recipients. Chest 2000;118(2):408–416

21 Türk KE, Yılmaz M. The effect on quality of life and body image of mastectomy among breast cancer survivors. Eur J Breast Health 2018;14(4):205–210

22 Timothy EK, Graham FP, Levack WM. Transitions in the embodied experience after stroke: grounded theory study. Phys Ther 2016;96(10):1565–1575

23 Kwakkel G, Kollen BJ, van der Grond J, Prevo AJ. Probability of regaining dexterity in the flaccid upper limb: impact of severity of paresis and time since onset in acute stroke. Stroke 2003;34(9):2181–2186

24 Coker E. After a stroke, women described changes that created a sense of bodily strangeness. Evid Based Nurs 2004;7(3):92–92