

# A Prevalence Study to Assess the Quality of Life among Chronic Stroke Survivors: Cross Sectional Study Report

T. Balaguru

## Abstract

**Background:** There is limited data on the quality of life in the early post-stroke phase and the changes in it over time. Social support and stroke-related depression significantly adversely affect the quality of life after stroke. Stroke-associated disability has been found to affect the health status of the individual with stroke over a period of time. The relationship between health status and other socio-demographic and clinical factors has been less well studied. In this study, the global and domain-specific quality of life was studied in patients with first ever episode of stroke, both ischemic and hemorrhagic, of 3 or more months' duration. **Objectives:** To study overall and domain-specific quality of life in stroke survivors within one year after stroke and to test the reliability and validity of the Modified stroke specific quality of life scale (SS – QOL) **Design:** An observational and cross-sectional pilot study was used. For the study. **setting:** Selected Multispecialty hospital at thanjavur district. **Participants:** 500 patients who suffered stroke up to 1 year prior to the present study were included. **Methods:** Patients were interviewed with use of Modified stroke specific quality of life scale (SS – QOL) and other indexes and scales were applied. The reliability was assessed by using Cronbach's alpha (internal consistency) and test-retest by using Spearman's rho scores; the acceptability was evaluated by the floor and ceiling effects. **Results:** Results show that psychosocial aspect of health is affected equally with that of physical health so researcher concluded that psychosocial aspect of health which directly influences the physical function of stroke survivors. so coping abilities to be improve for better adherence to the physical therapy. As coping strategies and mirror therapy can be offered as a useful adjunct in stroke rehabilitation, it would be beneficial if coping ability increase adherence to the physical therapy will also increase ultimately quality of life also good.

**Keywords:** Ischemic Stroke; Quality of Life; Psychosocial Health; Physical Health.

## Introduction

Stroke is a life-changing event that affects not only the person who may be disabled, but their family and caregivers. Utility analyses show that a major stroke is viewed by more than half of those at risk as being worse than death (AHA 2006). Traditionally, epidemiological stroke studies focused on mortality and recurrence but not on quality of life (QOL) issues. The prevalence of stroke survivors with incomplete

recovery has been estimated at 460/100 000. First-year mortality has been estimated between 15% and 25%, recurrence between 5% and 14%, and partial or complete disability between 24% and 54%.

Disability associated with stroke significantly interferes with the activities of daily living and, thus, the quality of life. Quality of life is a complex concept comprising physical, emotional and social well-being. While health is an essential ingredient of this concept, World Health Organization (WHO) identifies health-related quality of life as individuals' perception of their position in life according to their purposes, expectations, standards and worries within the context of the culture and value system in which they live. Social support helps patients to cope with the stress associated with the disease and treatment. Social support has positive effect on nursing care and health. Thus nursing staff needs to

**Author Affiliation:** Reader, Mannai Narayanasamy College of Nursing, Thanjavur, Tamil Nadu 614206, India.

**Corresponding Author:** T. Balaguru, Reader, Mannai Narayanasamy College of Nursing, Thanjavur, Tamil Nadu 614206, India.

E-mail: [mosbybala@gmail.com](mailto:mosbybala@gmail.com)

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consider the patients' social support systems, including home environment, family and partners.

There is limited data on the quality of life in the early post-stroke phase and the changes in it over time. Social support and stroke-related depression significantly adversely affect the quality of life after stroke. Stroke-associated disability has been found to affect the health status of the individual with stroke over a period of time. The relationship between health status and other socio-demographic and clinical factors has been less well studied. In this study, the global and domain-specific quality of life was studied in patients with first ever episode of stroke, both ischemic and hemorrhagic, of 3 or more months' duration, along with the relationship between the clinical factors, socio-demographic factors and quality of life.

The multidimensional approach of perceived health status in stroke patients has received attention only in the last few years. Consequences of stroke and health status affect even mild strokes. QOL assessment include at least 4 dimensions: physical, functional, psychological, and social health. The physical health dimension refers to disease-related symptoms. Functional health comprises self-care, mobility, and the capacity to perform various families and work roles. Psychological dimension includes cognitive and emotional functions (eg, vascular dementia and post stroke depression) and subjective perceptions of health and life satisfaction. Social dimension includes social and familial contacts.

#### *Statement of the Problem*

A observational study to assess the quality of life among chronic stroke patient visited in neurology OPD in selected multispecialty hospital at thanjavur city.

#### *Objectives*

1. To study overall and domain-specific quality of life in stroke survivors.
2. To associate certain demographic and clinical variables with quality of life.
3. To correlate the psychosocial and physical factor in quality of life.

#### *Assumption*

The study assume that,

- Quality of life is low for chronic stroke survivors.
- Psychological factors influencing the quality of life

#### *Delimitations*

The study is limited to,

1. A study setting selected was selected only two multispecialty hospital in thanjavur district.
2. Study is limited to 6 months.
3. Patients who suffered stroke up to 1 year prior to the present study.

#### *Studies Related to Quality of Life*

Niewada M, Michel P. (2016) summarize recent evidence on lifestyle modifications and first or recurrent stroke risk. Findings shows that Weight reduction, low-risk diet, regular physical activity, smoking cessation, and low-to-moderate alcohol consumption may reduce stroke risk up to 50% or more, but level one evidence is still lacking for several interventions. Appropriate food ingredients can significantly decrease stroke risk as recently confirmed for Mediterranean diet. The optimal intensity and amount of physical exercise is still not well established before and after stroke, although modest levels of activity already show benefits. Passive smoking represents an important health hazard. The impact of tobacco withdrawal using e-cigarette is currently uncertain. Alcohol and stroke risk relation is probably J-shaped for ischaemic stroke and linear for intracranial haemorrhage. Coffee consumption is J-shaped for overall stroke. Several interventions have failed to show significant effects, including regular intake of 'healthy' forms of fatty acids, various vitamin supplements, and other antioxidants. Both individualized and public educational programmes are likely needed on a repetitive basis to induce and maintain a healthy lifestyle before or after a stroke.

Van Mierlo ML, van Heugten CM, 2015 conducted a cohort study on Quality of Life during the First Two Years Post Stroke he stated that, most improvement in QOL occurred up to 6 months post stroke and showed different patterns for specific domains of QOL and for patients with and without dependency in ADL in the first week post stroke. It is therefore important to differentiate between these different domains of QOL when the long-term perspective is considered. Furthermore, patients dependent in ADL consistently scored lower on all QOL domains and did not reach the level of QOL of patients independent of QOL.

White J, Magin P, (2016) conducted a prospective cohort study on Predictors of health-related quality of life in community-dwelling stroke survivors the study results shows that On multivariable analysis,

HRQoL did not change significantly with time post-stroke. Higher HRQoL scores were independently associated with higher baseline HRQoL ( $P = 0.03$ ), younger age ( $P = 0.006$ ), lower disability ( $P = 0.003$ ), greater community participation ( $P \leq 0.001$ ) and no history of depression ( $P = 0.03$ ). So they concluded that These results contribute to an understanding of HRQoL in the first year post-stroke. Community participation and stroke-related disability are potentially modifiable risk factors affecting post-stroke HRQoL. Interventions aimed at addressing participation and disability post-stroke should be developed and tested.

Calabrò RS, Cacciola (2016) stated that Gait abnormalities following neurological disorders are often disabling, negatively affecting patients' quality of life. Therefore, regaining of walking is considered one of the primary objectives of the rehabilitation process. To overcome problems related to conventional physical therapy, in the last years there has been an intense technological development of robotic devices, and robotic rehabilitation has proved to play a major role in improving one's ability to walk. The robotic rehabilitation systems can be classified into stationary and over ground walking systems, and several studies have demonstrated their usefulness in patients after severe acquired brain injury, spinal cord injury and other neurological diseases, including Parkinson's disease, multiple sclerosis and cerebral palsy. In this review, we want to highlight which are the most widely used devices today for gait neurological rehabilitation, focusing on their functioning, effectiveness and challenges. Novel and promising rehabilitation tools, including the use of virtual reality, are also discussed.

#### *Supportive Studies for Tools*

Lo SH, Chang AM, (2016) conducted A descriptive study was conducted to examine the reliability, validity and factor structure of the translated version (SSQOL-C) among stroke survivors. Participants completed SSQOL-C, and the Chinese versions of the Medical Outcomes Study Short-Form Health Survey (SF-36), Stroke Self-Efficacy Questionnaire (SSEQ-C) and French Activities Index (FAI). Thirty of these participants completed the same questionnaires after 4 weeks. results shows that A total of 135 stroke survivors (mean age  $58.90 \pm 9.75$ ) were recruited. SSQOL-C had good internal consistency with Cronbach's alphas for each domain ranging from 0.63 to 0.90. Most domains had moderate to high correlations with similar dimensions of SF-36, SSEQ-C, FAI and Barthel ADL Index total scores (Spearman's rho: 0.40-0.77,  $p < 0.01$ ), suggesting

acceptable convergent validity. Principal component analyses suggested an 11-factor model in contrast to the 12-factor model for the original scale with six new factors emerging and five original factors retained. The results suggest SSQOL-C is a reliable and valid tool for measuring Chinese stroke survivors' health-related quality of life. More studies are needed to confirm the 11-factor model of the scale. Implications for rehabilitation the translated Chinese version of the Stroke Specific Quality of Life Scale is a reliable and valid tool for measuring Chinese stroke survivors' health-related quality of life. An 11-factor model in contrast to the 12-factor model for the original scale with six new factors emerging and five original factors retained.

Chou CY, Ou YC, (2015) Examine psychometric properties of four stroke-specific health-related quality of life (HRQoL) measures, including original Stroke-Specific Quality of Life Scale (12-domain SSQoL), modified 8-domain SSQoL, Stroke Impact Scale (SIS 3.0), and modified SIS-16 focused on physical domains. Study cohort was recruited with 263 patients in the first administration and 121 in the second administration, an average of two weeks later. To investigate discriminant validity, the same number of patients (i.e., 52) was grouped for each of 3 levels of stroke severity. Outcome measures, including National Institutes of Health Stroke Scale, Mini-Mental State Examination, and Barthel Index. Patients completed HRQoL self-reports. Domains of four measures showed (1) good reliability, except 12-domain SSQoL family roles (Cronbach's  $\alpha = 0.68$ ) and personality domains (Cronbach's  $\alpha = 0.65$ ) and SIS 3.0 social participation (ICC=0.67) domain; (2) acceptable precision, except 12-domain SSQOL family role domain and SIS 3.0 social participation domain; (3) good convergent validity, except 12-domain SSQOL/8-domain SSQOL vision domain ( $r = 0.19$ ), (4) good discriminant validity, except 12-domain SSQOL and 8-domain SSQOL thinking domains ( $P = 0.365$ ); and (5) acceptable floor effects and strong ceiling effects. The 12-domain SSQOL and 8-domain SSQOL met scaling assumptions better than SIS 3.0 and SIS-16. Four measures showed acceptable psychometric properties with some domains slightly less satisfactory. Overall, use of 8-domain SSQOL and SIS 3.0 are feasible for clinical practice to monitor HRQoL of stroke survivors.

## **Materials and Methods**

### *Research Approach*

Quantitative Non Experimental Evaluative Research approach

*Research Design*

A cross-sectional, descriptive design approach was used to assess the quality of life.

*Setting of the Study*

The study was conducted in KSDC hospitals and Meenakshi Multi-Specialty Hospital in Thanjavur.

*Population*

Patients who suffered stroke not more than 1 year present during the study in Thanjavur District.

*Target Population*

All chronic stroke patients (not more than one year) present during the study.

*Accessible Population*

All chronic stroke patients visited in KSDC hospitals and Meenakshi Hospital Thanjavur.

*Sample*

A list of stroke patients who meets the criteria and willing to participate for the study in KSDC and Meenakshi hospitals at Thanjavur.

*Sample Size*

500 chronic stroke patients were included in the present study

*Sampling Technique*

Purposive sampling technique was used to select the sample for the study.

*Criteria for Sample Selection**Inclusion Criteria*

Patients who are:

- Both genders,
- Medically stable

- diagnosed with stroke up to 1 year prior to the present study
- Age between 25 to 70 yrs.
- Willing to participate in the study
- Available during the time of study
- Ability to follow verbal instructions.

*Exclusion Criteria*

Patients who are:

- Inability to speak, dementia,
- Verified psychiatric disorders,
- Failure to complete the questionnaire and/or to understand its contents,
- Elapsed time of over 1 year since stroke diagnosis.

*Description of the Tool*

There are two sections tools were used. They are;

*Section A:* It consists of two parts: part I- Basic information about patient Demographic Variables it consists of 10 items & clinical information about patient by Clinical data it consists of 10 items and modified NIHSS (10 items) used in order to determine the inclusion criteria. No score is allotted for this section; this data is used for descriptive analysis of patient data.

*Section B:* This section consists of modified SS – QOL scale to assess the physical & psychosocial outcome after stroke. Researcher divided this scale in to two components physical and psychosocial component, physical outcome measure has 6 subtest energy (3) mobility (6) self-care (5) vision (3) upper extremity function (5) work productivity (3) and psychosocial outcome measures has 6 subtests family roles (3) language (5) mood (5) personality (3) social roles (5) thinking (3). It is measured by 5 point scale. Scoring of the items ranges from 5to 1 respectively no help to total help. Classification is made based on the percentile.

*Scoring Procedure*

Based on the percentage of scores quality of life were graded in four categories. They are "poor", "fair", "good" "very good".

	Psychosocial out come		Physical outcome	
	Frequency	Percentage	Frequency	Percentage
Poor	20-40	20-40	21-42	20-40
Fair	41 - 60	41 -60	43-64	41-60
Good	61 - 80	61- 80	65-86	61-80
Very good	81- 100	80 - 100	87-105	81-100

Tools are prepared in English and translated in Tamil.

#### *Reliability & Validity of the Tool*

Patients were interviewed with use of Modified stroke specific quality of life scale (SS - QOL) and other indexes and scales were applied. The reliability was assessed by using Cronbach's alpha (internal consistency) and test-retest by using Spearman's rho scores; the acceptability was evaluated by the floor and ceiling effects. Ceiling and floor effects were observed for fewer than 20% of the patients. The overall internal consistency of the questionnaire was greater than 0.7 (Cronbach's  $\alpha$ ), with only two domains (family roles and personality) having lower internal consistency values. The results displayed high test-retest reliability: all domains had Spearman's rhoscores of over 0.8. The questionnaire has adequate construct validity. Our preliminary results showed that the psychometric properties (acceptability and reliability) of the Tamil SSQOL questionnaire are good, encouraging, and comparable to those of other similar studies.

#### *Data Collection Procedure*

Data collection was done from the month of March 2013 to August 2013. The permission was obtained from authority of the hospitals. Patients suffered with stroke who fulfill inclusion and exclusion criteria were selected. Medical case records were analyzed for eligibility to participate in the study, purpose of the study was explained and written consent was obtained from each participant. The investigator established rapport with the subjects to win their confidence, and to get cooperation. The time taken to complete the questionnaire was approximately 15 to 20 minutes.

#### *Plan for Data Analysis*

Data analysis was planned based on the objectives stated in the study by using descriptive and inferential statistics. The plan for data analysis was as follows.

- Consolidation and organizing the data in master sheet.
- Tabulate frequency and percentage for the analysis of demographic & clinical characteristics of the subjects.
- To associate the demographic & clinical characteristics of the subjects with quality of life by chi-square test.
- To correlate the psychosocial factors with physical factor of quality of life.

### **Results**

#### *Section I*

Frequency and Percentage Distribution of the Demographic variables of Study Participants (N = 500).

A comparison of the demographic characteristics of the study participant of Study Participants showed there were no differences between the groups in age, domicile, socioeconomic status, and occupation. There was a significant difference between the groups in education and income. This indicates that the groups did not differ in most of the personal characteristics

#### *Section I A*

Frequency and Percentage Distribution of the Clinical variables of Study Participants (N = 500).

A comparison of the clinical characteristics of the study participant in the experimental and control group showed there were no differences between the groups in types of stroke, Location of lesion, location of disabilities, level of upper motor function, and severity of stroke time since stroke and compliance of treatment. There was a significant difference between the groups in premorbid condition & associated illness. This indicates that the groups did not differ in most of the clinical characteristics.

#### *Section II*

**Table 1:** Distribution of quality of life among stroke survivors

N = 500

S. No	Level of Outcome	Psychosocial Outcome		Physical Outcome	
		N	%	N	%
1.	Poor	246	50	226	45
2.	Fair	226	45	248	50
3.	Good	28	5	26	5
4.	Very good	0		0	

### Quality of Life after Stroke

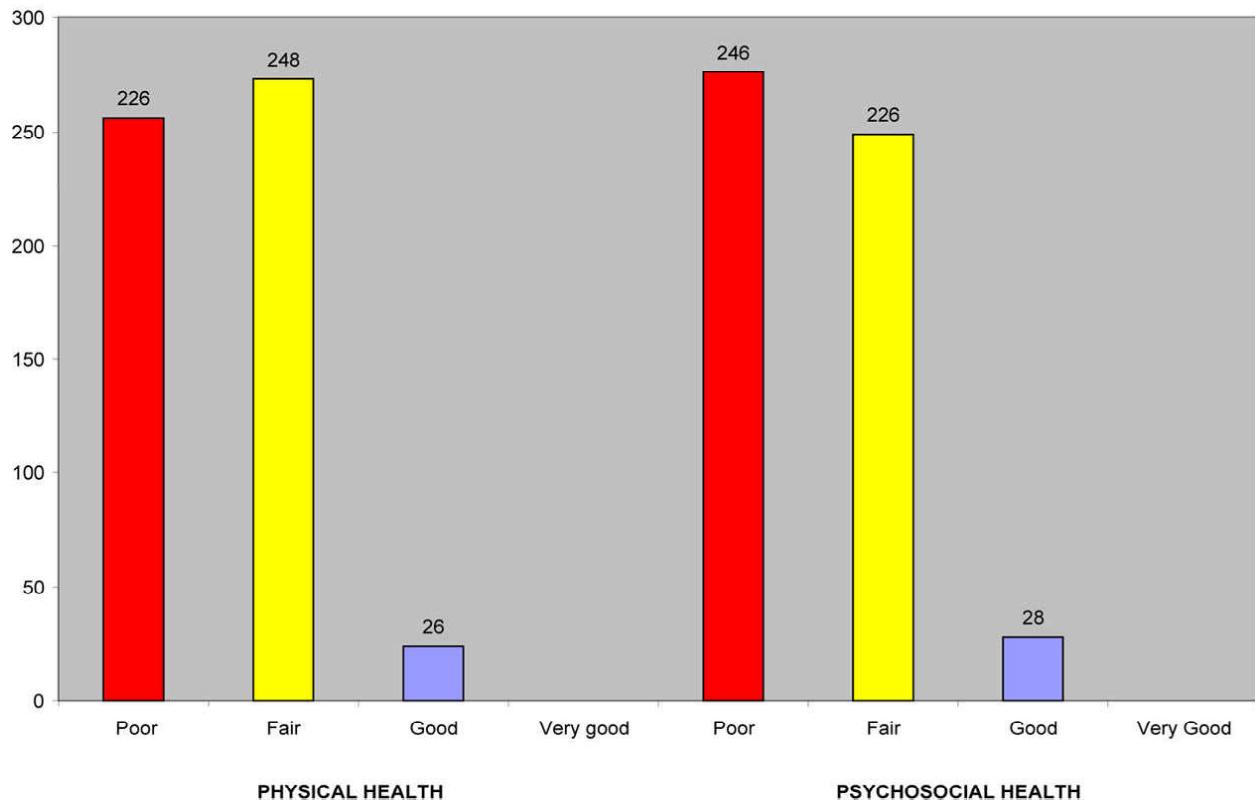


Fig. 1:

Table 2: Association between quality of life and demographic variables among Study Participants.

Sl. No.	Variables	Chi square	P value	Level of Significant
Psychosocial				
1	Age	14.81	0.415	NS
2	Domicile	2.314	0.575	NS
4	Occupation	0.075	0.171	NS
5	Income	1.142	0.186	NS
6	Socioeconomic status	0.416	0.612	NS
7	Personal habit	0.874	0.014	NS
8	Family support system	5.010	0.024	S
Physical				
1	Age	0.112	0.154	NS
2	Domicile	1.142	0.375	NS
4	Occupation	0.075	0.171	NS
5	Income	1.120	0.729	NS
6	Socioeconomic status	1.820	0.177	NS
7	Personal habit	0.174	0.914	NS
8	Family support system	4.086	0.004	S

$\chi^2$  Value with  $P < 0.05$

NS- Non significant, S- significant \* significance level - 0.05

#### Section III

Description about association between quality of life and demographic & clinical variables among Study Participants.

#### Inferences

Above table shows association between demographic variable and quality of life of stroke patients there is no significant association between

patients scores when compared to the Age, Domicile, occupation, religion, Income, Socioeconomic status, Personal habits of patients in psychosocial and

physical outcome of quality of life, whereas there is a significant association with Family support system and quality of life.

**Table 3:** Association between quality of life and clinical variables in Study Participants

Sl. No.	Variables	Chi square	P value	Level of Significant
Psychosocial				
1	Type of ischemic stroke	1.857	0.395	NS
2	Location of lesion	2.534	0.114	NS
3	Location of disability	0.104	0.741	NS
4	Level of upper motor function	0.996	0.608	NS
5	Pre morbid condition	3.311	0.191	NS
6	Severity of stroke as per NIHSS	4.521	0.119	NS
7	Time since stroke	3.896	0.143	NS
8	Associated illness	2.564	0.197	NS
9	Compliance on treatment	5.654	0.010	S
Physical				
1	Type of ischemic stroke	1.857	0.395	NS
2	Location of lesion	2.541	0.146	NS
3	Location of disability	3.143	0.208	NS
4	Level of upper motor function	1.472	0.125	NS
5	Pre morbid condition	2.456	0.163	NS
6	Severity of stroke as per NIHSS	4.524	0.008	S
7	Time since stroke	3.546	0.421	NS
8	Associated illness	1.256	0.602	NS
9	Compliance on treatment	5.894	0.009	S

$\chi^2$  Value with  $P < 0.05$

NS- Non significant, S- significant \*significance level - 0.05

**Table 3:** Correlation of psychosocial and physical factor in quality of life among Study Participants.

Variables	R- Value	Correlation Coefficient
Psychosocial & Physical Outcome	1.23	Positive correlation

### Inferences

Above table shows association between clinical variable and quality of life of stroke patients there is no significant association between patients scores when compared to the Type of ischemic stroke, Location of lesion, Location of disability, Level of upper motor function, Pre morbid condition, Time since stroke, associated illness in psychosocial and physical outcome of quality of life, whereas there is a significant association with Severity of stroke as per NIHSS, Compliance on treatment and physical outcome of quality of life.

### Section -IV

Correlation of psychosocial and physical factor in quality of life

The data presented in this table showed that r-value 1.23 indicates a positive association between Psychosocial & physical outcome of quality of life hence it indicate that psychosocial factors directly influence the physical outcome of quality of life.

### Conclusion

Results show that psychosocial aspect of health is affected equally with that of physical health so researcher concluded that psychosocial aspect of health which directly influences the physical function of stroke survivors. so coping abilities to be improve for better adherence to the physical therapy. As coping strategies and mirror therapy can be offered as a useful adjunct in stroke rehabilitation, it would be beneficial if coping ability increase adherence to the physical therapy will also increase ultimately quality of life also good. Mirror therapy can be implemented in clinical settings. And also it can be practice in home care settings by patient itself.

### Recommendations

1. A Experimental study can be conducted with comprehensive intervention programme to improve the quality of life among stroke survivors.
2. A study can be conducted on psychosocial aspect

and identify the new coping intervention for better adherence of stroke therapy.

3. A comparative study can be done between urban and rural stroke survivors to identify the self efficacy of stroke management.

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