

# Relationship Between Physical Activity and Quality of Life in Patient with Stroke

Dr. Suryabhan Bhadange<sup>1</sup>, Dr. Suvarna Ganvir<sup>2</sup>, Dr. Saumi Sinha<sup>3</sup>,  
Dr. Sheetal Malekar<sup>4</sup>

<sup>1</sup>MPT Student of Dr APJAK College of Physiotherapy

<sup>2</sup>Professor & HOD Neuro-Physiotherapy Department of DVVPFS College Of Physiotherapy

<sup>3</sup>HOD Of Cardiorespiratory Physiotherapy Dr APJAK College of Physiotherapy

<sup>4</sup>Cardio-Respiratory Physiotherapist of Seven Hills Multispeciality Hospital

Corresponding Author: Dr. Sheetal Malekar

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## ABSTRACT

**Background** - Stroke remains one of the major chronic illnesses worldwide that health care organization will need to address for coming decades.<sup>7</sup> Stroke is a major cause of morbidity and mortality worldwide.<sup>8</sup> Physical activity and exercise recommendations exist for a wide range of healthy, older, and patient populations<sup>(14,15)</sup>, including those with specific health problems such as stroke.<sup>16</sup> Exercise and physical activity are widely promoted during life after stroke. The current evidence in the previous version of this review indicates that exercise can reduce disability and improve physical fitness and aspects of physical function.<sup>17</sup> Hence the purpose of this study is to find out the relation between quality of life and physical activity in stroke patients.

**Methodology** – Total 50 subjects were selected based on inclusion and exclusion criteria by using convenient sampling method. The data were collected by using SSQOL (Stroke Specific Quality of Life) and SPAQ (Stroke Physical Activity Questionnaire). The data was analyzed by using GraphPad 6.0 Version software.

**Result** - Out of all stroke inpatients, the mean scores of patients with no risk are at more chance for stroke attack (p value < 0.0014), mean scores of patients with two risk factors are next to those with no risk (p value < 0.028), followed by patients with one risk (p value < 0.0107). The Barthel index means score values are similar to that of the SSQoL mean values.

**Conclusion** - There was significant improvement seen in quality of life rather than physical activity in stroke patients. And there was not significant relation in quality of life and physical activity in stroke patients without any physiotherapy intervention.

**Keywords:** Stroke patients, Quality of life, SSQoL, SPAQ.

## INTRODUCTION

According to the World Health Organization (WHO), stroke is quickly emerging clinical signs of global or focal or disturbance of cerebral function, remaining more than 24 h or leading to death, with no obvious cause other than that of vascular origin. (1) It is one of the foremost causes of death and disability in India. The predicted prevalence rate of stroke is 84–262/100,000 in rural and 334-424/100,000 in urban areas, (2) Stroke

remains one of the major chronic illnesses worldwide that health care organization will need to address for coming decades. (7) Stroke is a major cause of morbidity and mortality worldwide. (8) Currently 90% of the survivors of stroke develop some kind of disability, making it a leading cause of chronic disability in adults. (9)

Stroke not only affect patient but also their family members that may subsequently affect the recovery of stroke survivors.

Unlike other life style related disease, the onset of stroke is rapid, leaving the family and survivors will be prepared to deal problems at home. After stroke, approximately 35-45 % of patients become totally or partially dependent on family members to meet their basic activity of daily living (ADLs). (12) It has been reported that 80% of the patients becomes dependent on their family members for daily needs. (13) Few studies showed that in recent years there have been increasing awareness about the role of caregivers in the rehabilitation of stroke patients and it shows that informal caregivers are the backbone of rehabilitative services for stroke patients.

Physical activity and exercise recommendations exist for a wide range of healthy, older, and patient populations (14,15), including those with specific health problems such as stroke (16). Exercise and physical activity are widely promoted during life after stroke. The current evidence in the previous version of this review indicates that exercise can reduce disability and improve physical fitness and aspects of physical function. (17) Hence the purpose of this study is to find out the relation between quality of life and physical activity in stroke patients.

## **METHODOLOGY**

Study design: Cross Sectional Study

Sampling technique: Convenient Sampling

Sample size: 50

Study setting: Ahmednagar.

Study duration: 6 months

### **Selection criteria**

#### **Inclusion Criteria:**

1. Gender: Male / Female
2. Patient with Acute, Sub Acute & Chronic Stroke Patient.
3. Patient Above 18 years age
4. Cooperative Patient

#### **Exclusion Criteria:**

1. Patient with other neurological conditions
2. Patient who unable follow commands.
3. Patient with Any Musculoskeletal Disorders

## **PROCEDURE -**

The ethical clearance for this study was obtained from ethical committee. There was instruction given to participant about study, its benefits and risk. The written inform consent was taken from participant. 50 subjects were selected based on inclusion and exclusion criteria by using convenient sampling method. The data were collected by using SSQOL (Stroke Specific Quality of Life) and SPAQ (Stroke Physical Activity Questionnaire). The data was analyzed by using GraphPad 6.0 Version software.

## **OUTCOME MEASURES**

### **SSQOL scale -**

Various specific instruments for assessing post stroke SSQOL offer the advantage of assessing domains relevant to stroke, such as vision or language. These, however, are not available in all languages, and some are proxy versions (addressed to the primary caregiver) [3]. Among these tools is the Stroke-Specific Quality-of-Life (SSQOL) scale, which was developed as a comprehensive measure of multiple effects in post stroke patients. The scale consists of 49 questions grouped into 12 domains [13]. The SSQOL questionnaire is an appropriate tool to measure the HRQOL of post stroke patients.

### **SPAQ scale –**

The Physical Activity Scale for the (SPAQ) is an easily administered and scored instrument that measures the level of physical activity in individuals aged 65 years and older. The instrument is comprised of self-reported occupational, household and leisure activities items over a one-week period and may be administered by telephone, mail or in-person. The PASE scoring algorithm was derived from physical activity measured by movement counts from an electronic physical activity monitor, activity diaries, and self-assessed activity levels in a general population of non-institutionalized older persons. The PASE can be used to measure physical activity levels in epidemiologic surveys of older

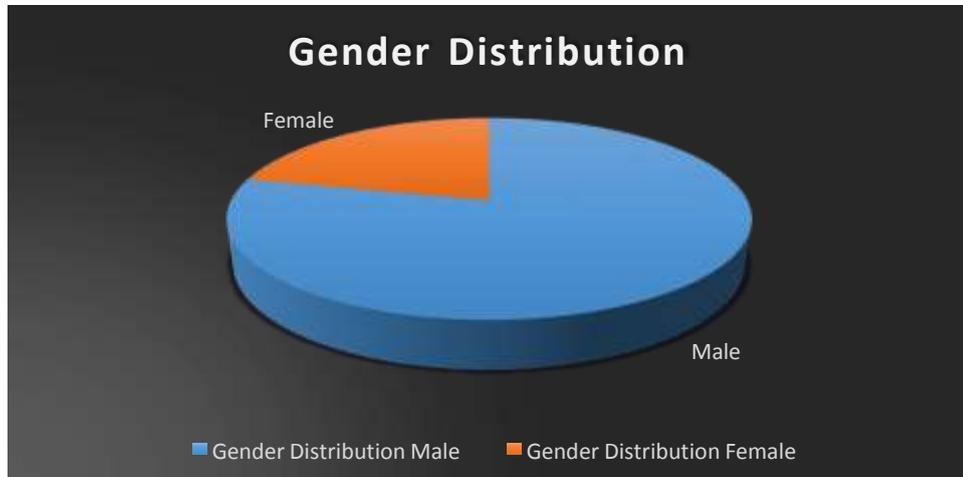
people as well as to assess the effectiveness of exercise interventions.

**RESULTS**

**Table no. 1**

Gender Distribution	
Male	Female
33	9

**Graph no. 1**

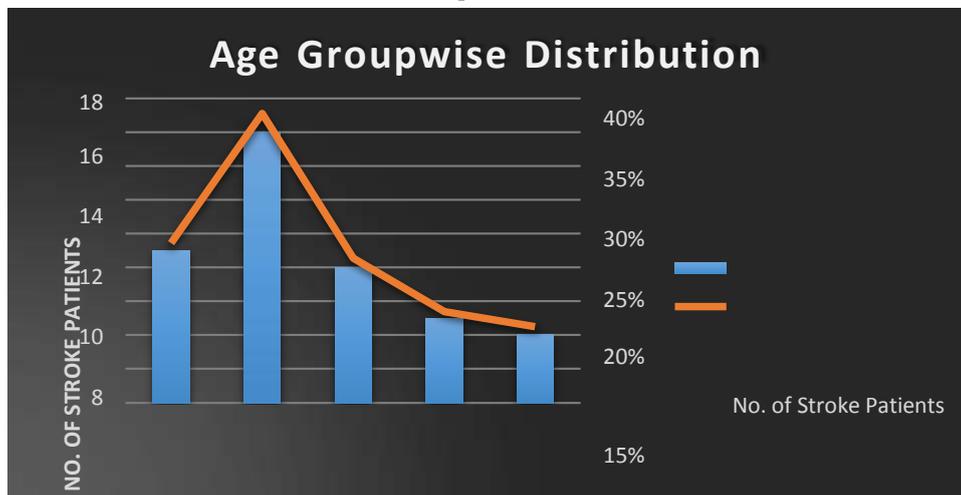


By gender distribution 21% of females and 9% of males were participated.

**Table no. 2**

Age Groupwise Distribution		
Age Group	No. of Stroke Patients	Percentage
31 - 40	9	21%
41 - 50	16	38%
51 - 60	8	19%
61 - 70	5	12%
70 above	4	10%

**Graph no. 2**



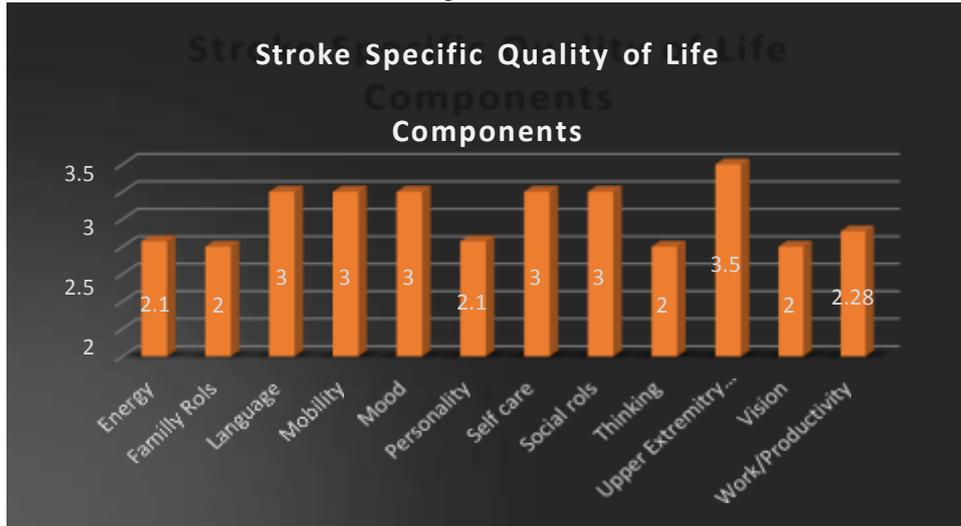
As per the age criteria, the 38% of age group of 41-50 years participants were more affected. Where 21% of age group 31-40 and 19% of age group 51-60 years of participants were affected. The 60 years and above participants were less affected with stroke condition.

**Table no. 3**

Stroke Specific Quality of Life	
Component	SSQoL
Sample Size (N)	42
Mean	32.07
Standard Deviation (SD)	6.098
Std. Error Mean (SEM)	0.941
Lower 95% Conf. Limit	30.171
Upper 95% Conf. Limit	33.972
P Value	0.0001, S
Passed Normality Test?	No

\*S - Significant

Graph No. 3



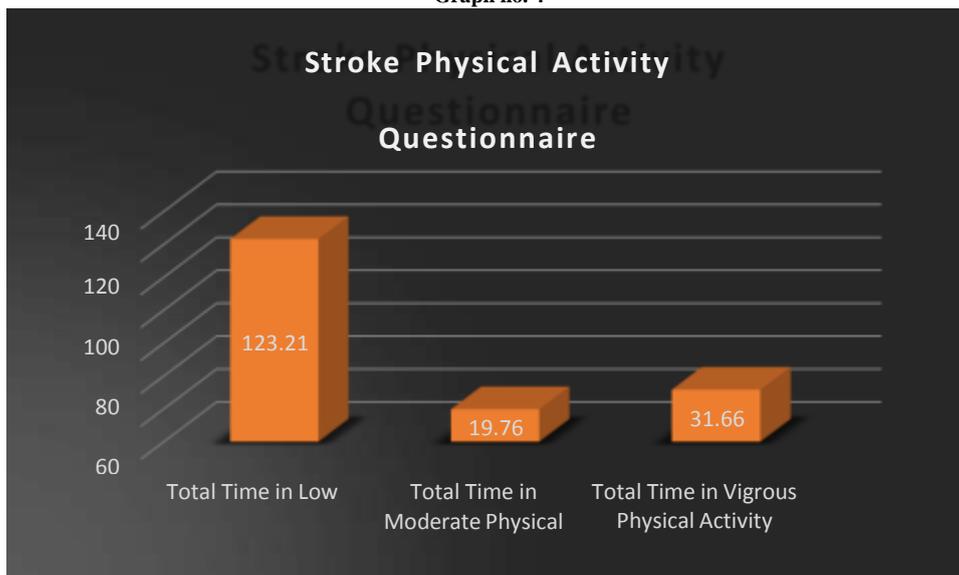
As per the SSQOL Scale the means was 32.07 with SD of 6.098 and the p value for this scale was 0.0001, which was significant in stroke patients after discharge from hospital. This significance of SSQOL shows that there was improvement in quality of life after suffering from stroke episode.

Table no. 4

Stroke Physical Activity Questionnaire			
Items	Total Time in Low Physical Activity	Total Time in Moderate Physical Activity	Total Time in Vigorous Physical Activity
Mean	123.21	19.76	31.66
SD	± 28.237	± 8.036	± 9.606
Std. Error Mean (SEM)	4.357	1.240	1.482
Lower 95% Conf. Limit	114.41	17.257	28.673
Upper 95% Conf. Limit	132.02	22.267	34.661
P Value	0.09	0.178	0.116
Passed Normality Test?	Yes	No	Yes

\*NS – Not Significant

Graph no. 4

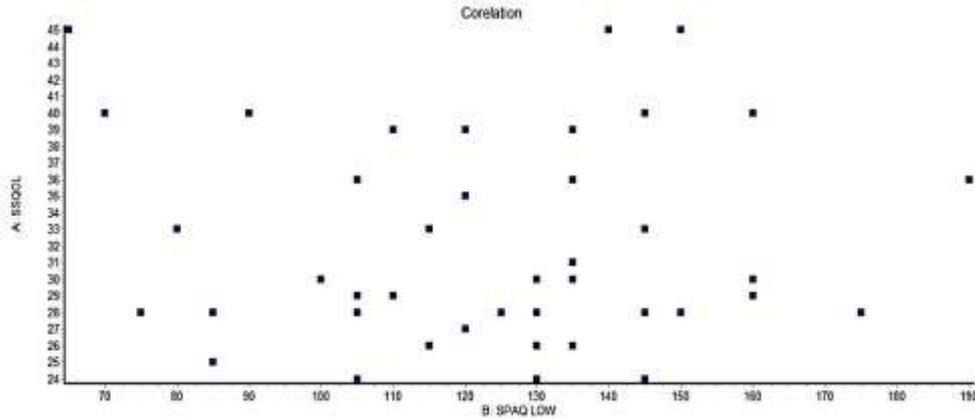


As per SPAQ scale the mean for low, moderate & vigorous are 123.21, 19.96 & 31.66 and the p value for SPAQ is not significant and it indicates that there was no progress in physical activity of stroke patients.

**Table no. 5**

Multiple Regression Correlation	
SSQOL vs SPAQ Low Physical Activity	
R Squared	0.06%
SD of Residuals	6.172
R	0.0247
F	0.0245
P Value	0.876, Not Significant

**Graph no. 5**

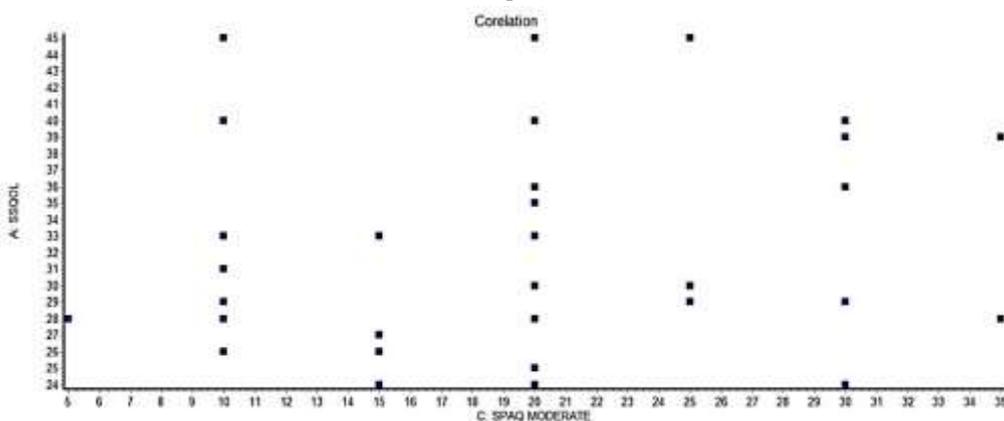


According to Multiple regression correlation between SSQOL and SPAQ Low activity p value was not significant and there was no correlation between the quality of life and physical activity in stroke patients.

**Table no. 6**

Multiple Regression Correlation	
SSQOL vs SPAQ Moderate Physical Activity	
R Squared	7.65 %
SD of Residuals	5.933
r	0.276
F	3.313
P Value	0.076, Not Significant

**Graph No. 6**

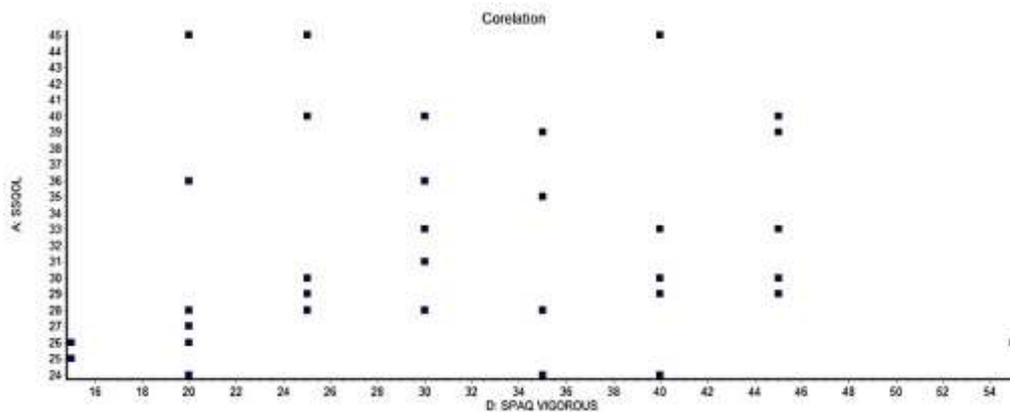


According to Multiple regression correlation between SSQOL and SPAQ Moderate activity p value was not significant and there was no correlation between the quality of life and physical activity in stroke patients.

**Table no. 7**

Multiple Regression Correlation	
SSQOL vs SPAQ Vigorous Physical Activity	
R Squared	0.92 %
SD of Residuals	6.142
r	0.095
F	0.3702
P Value	0.546, Not Significant

Graph No. 7



According to Multiple regression correlation between SSQOL and SPAQ Vigorous activity p value was not significant and there was no correlation between the quality of life and physical activity in stroke patients.

## DISCUSSION

The aim of our study was to find out the relationship between physical activity and quality of life in stroke patients. Even though to gain understanding of extent and pattern of affection to stroke patients after discharge from hospital. With respect to our results shows that there was significant improvement in quality of life in stroke patients but in physical activity there was no significant improvement. With correlational multiple regression also shows that there was no significant relation in between quality of life and physical activity. Also, previous researches shows that there is improvement in quality of life in stroke patient but after discharge from hospital there is no any improvement in physical activity.

The results of Barthel Index too were similar with SSQoL. Different risk factors like smoking, alcoholism, pan chewing and tobacco chewing were considered in all patients to assess the severity of stroke attacks. The SSQoL mean for all the four differentiated risk factors were considered. Out of all stroke inpatients, the mean scores of patients with no risk are at more chance for stroke attack (p value < 0.0014), mean scores of patients with two risk factors are next to those with no risk (p value < 0.028),

followed by patients with one risk (p value < 0.0107). The Barthel index means score values are similar to that of the SSQoL mean values. Hence according to our results by using multiple correlational analysis we found that there is improvement in quality of life after stroke episode, but there is no improvement in physical activity after discharge from hospital and also no any relation with respect to outcome measures.

## CONCLUSION

There was significant improvement seen in quality of life rather than physical activity in stroke patients. And there was not significant relation in quality of life and physical activity in stroke patients without any physiotherapy intervention.

### Declaration by Authors

**Ethical Approval:** Approved

**Acknowledgement:** None

**Source of Funding:** None

**Conflict of Interest:** The authors declare no conflict of interest.

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