

# Quality of Life of Patients After Brain Stroke and Related Factors at Traditional Medicine Hospital of Dak Lak Province

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**Abstract**— Determining the level of quality of life of stroke patients and related factors of stroke patients with weakness and paralysis of the upper limb before motor rehabilitation care at the Provincial Traditional Medicine Hospital Dak Lak in 2023. **Materials and methods:** A cross-sectional descriptive study was conducted on 97 stroke patients with upper limb weakness undergoing rehabilitation treatment at Dak Lak Provincial Traditional Medicine Hospital from December 2022 to June 2023. **Result:** Average age is  $62.92 \pm 10.83$ ; Patients live with family (54.6%), and are cared for by their children (46.4%); Patients with first stroke account for 78.4%; The location of weakness mainly appears on the left side (67%). There is a relationship between age, care components, stroke history, location of weakness, hypertension and cardiovascular disease to the quality of life of stroke patients before motor rehabilitation care.

**Keywords**— Stroke, quality of life, EQ-5D-5L scale.

## I. INTRODUCTION

Brain stroke is still a current issue for the health sector and the population in all countries around the world, including Vietnam [1]. Stroke often occurs in the elderly and is second only to cardiovascular disease in the world. The disease often leaves disabling consequences that burden families and society [2].

According to the 2021 annual report of the World Stroke Organization, each year more than 12.2 million people in the world suffer from stroke and the consequences lead to about 5.5 million deaths. More than 100 million people around the world have experienced and lived with the effects of a stroke. Projections also show that the number will continue to increase sharply in the coming decades with the trend of gradually rejuvenating, the risk of stroke in adults over 25 years old has increased from 1/6 to 1/4, This means that 1 in 4 people over the age of 25 will have a stroke in their lifetime [2].

In Vietnam, many studies and statistics show that the rate of stroke patients has been increasing in recent years [1]. According to records from the stroke emergency center of hospital 115, among hospitalizations due to stroke, cerebral stroke accounts for the highest rate (85%) and tends to increase steadily over the years, from 10,351 people in 2016 increased to 11,787 people in 2018. What is worrying is that the number of stroke cases has increased in recent years, with a trend toward younger people, with the number of patients under 45 years old accounting for 25% of the total number of

stroke cases. Even many people in their 20s or younger have strokes [3].

Patients after a stroke, especially those with upper limb weakness, often encounter many difficulties in social interaction, self-care as well as in daily activities, Accompanied by psychological problems that must be regularly experienced such as feelings of lack of confidence in oneself, disappointment, anxiety, depression as well as anger and helplessness towards oneself [2]. Therefore, improving the quality of life in stroke survivors is recognized as extremely necessary, as an indispensable part of treatment and care. Research into factors related to quality of life will help develop treatment and care strategies to improve the quality of life of stroke patients.

## II. OBJECTIVES

Dak Lak Provincial Traditional Medicine Hospital is a long-standing hospital with a history of more than 40 years. Located in the center of the Central Highlands region as well as Buon Ma Thuot City, Dak Lak province, so it is very convenient to access and visit local patients. The number of patients coming for examination, treatment and rehabilitation after stroke here accounts for a large proportion in the area, the vast majority of patients are in need of treatment and rehabilitation of motor function. To better research the level of patient quality of life and factors related to patient quality of life in order to promptly provide interventions to improve quality of life. We carried out the research topic: "Quality of life of patients after brain stroke and related factors at Traditional Medicine Hospital of Dak Lak province". With 2 objectives: (1) Determine the level of quality of life of stroke patients with upper limb weakness according to the EQ-5D-5L scale before receiving motor rehabilitation care at the Traditional Medicine Hospital of Dak Lak province in 2023. (2) Identify factors related to the quality of life of patients after stroke with upper limb weakness before receiving motor rehabilitation care at the Traditional Medicine Hospital of Dak Lak province in 2023.

## III. MATERIAL AND METHODS

### A. Research design

Cross-sectional descriptive research method.

**B. Research time and location**

Time: From August 2022 to September 2023

Data collection period is from December 2022 to June 2023

Research location: Department of Rehabilitation, Traditional Medicine Hospital of Dak Lak province

**C. Research object**

Inpatients diagnosed with stroke and upper limb weakness and paralysis are receiving rehabilitation treatment at Dak Lak Provincial Traditional Medicine Hospital in 2023.

**D. Sample size**

Sample size is calculated according to the formula:

$$n = \left( \frac{Z(1-\alpha/2) \times \sigma}{d} \right)^2$$

n: Sample size.

α: statistical significance level; With α = 0.05, the reliability coefficient Z = 1.96

d: marginal error to be estimated in the study with 95% confidence

σ: standard deviation of the estimated variable

The estimated standard deviation is based on research by Ha Xuan Kien at Ha Giang Provincial General Hospital in 2021, using the EQ-5D-5L questionnaire [4]

$$n \geq \left( \frac{1.96 \times 0.25}{0.05} \right)^2 = 97$$

So, the sample size is 97 patients.

**E. Sampling method:**

Select the sample using systematic random sampling method

**F. Sample selection criteria**

**1) Criteria for selecting patients**

Patients 18 years of age or older.

The patient was diagnosed with a stroke and has upper limb weakness and is receiving treatment to restore motor function at the Rehabilitation Department.

The patient agreed and voluntarily participated in the study.

**2) Exclusion criteria**

The patient has an acute medical condition such as fever, infection,...

The patient had previously participated in this study and was readmitted to the hospital

**G. Steps to conduct research**

**1) Collect patient information:** Through medical records, direct interviews with patients

**2) Data collection tool:** Using the EuroQoL-5 dimension-5 level questionnaire, also known as EQ-5D-5L (developed by a group of European scientists - EuroQol Group) [5]

The data collection form consists of 3 parts:

Part 1: Demographic characteristics: Age; Gender; Current job; Academic level; Marital status; Living situation; Care

ingredients.

Part 2: Clinical features: History of stroke; Weak position; Risk factor.

Part 3: Quality of life

**H. Data processing methods:**

Edit and process raw data collected from interview questions and data collection tables. Check for complete accuracy and input data using epidata 3.1 software. Process raw data using Microsoft Excel 2013 software. Data in the study were analyzed using SPSS 18.0 software.

**I. Research ethics**

The study was conducted after approval by the Medical Ethics Board of Ho Chi Minh City University of Medicine and Pharmacy in Decision No. 1052 /HDĐĐ-DHYD dated December 9, 2022, Permission from Dak Lak Provincial Traditional Medicine Hospital.

The research does not affect or interrupt medical care and treatment, and does not affect the patient's health or economy.

Research is only performed with the consent of the patient and his/her family.

All patient information is kept completely confidential.

The subjects involved are clearly explained.

**J. Applicability of the research**

This study aims to determine the level of quality of life and factors related to the quality of life of patients after stroke before receiving rehabilitation care from which to develop effective intervention programs to Improve the quality of life of patients at the Traditional Medicine Hospital of Dak Lak province.

Contribute to building a model of evidence-based care practice for clinical nurses. Contribute additional documents and data on quality of life for other future studies.

**IV. RESULTS AND DISCUSSION**

**A. Characteristics of research subjects**

Patients are male, accounting for 62.9%. Age group ≥ 60 accounts for 59.8% and age group < 60 accounts for 40.2%. Average age: 62.92 ± 10.83 (lowest: 31, highest: 90). The majority of patients live in rural areas (76.3%). Patients are farmers, accounting for 47.4%, with the lowest being officials, accounting for 10.3%. Patients with elementary school education account for 47.4%, middle school education accounts for 37.1%, high school education accounts for 9.3% and college and university degrees account for 6.2%. The majority of patients have a spouse (78.4%), widows account for 14.4% and divorce accounts for 7.2%. Living situation of patients: 12.4% of patients live alone, 33.0% of patients live with only husband and wife and 54.6% of patients live with family. 46.4% of patients were cared for by their children, 27.8% were cared for by their spouses, 17.6% were cared for by themselves, and 8.2% were cared for by relatives or maids.

TABLE I. Distribution of patients according to demographics

Demographic characteristics		Number of patients (n)	Ratio (%)
Sex	Male	61	62,9
	Female	36	37,1
Ages	< 60	39	40,2
	≥ 60	58	59,8
	Average age: 62.92 ± 10.83 (lowest: 31, highest: 90)		
Accommodation	Urban area	23	23,7
	Rural area	74	76,3
Job	Officials	10	10,3
	Farmer	46	47,4
	Trade	14	14,4
	Retirement	27	27,8
Academic level	Primary school	46	47,4
	Secondary school	36	37,1
	High school	9	9,3
	College, University	6	6,2
Marital status	Unmarried	0	0
	Married	76	78,4
	Divorce	7	7,2
	Widow/ widower	14	14,4
Living circumstances	Alone	12	12,4
	Just husband and wife	32	33,0
	Live with family	53	54,6
Care components	Couple	27	27,8
	Children	45	46,4
	Relatives/maids	8	8,2
	Self care	17	17,6

TABLE II. Distribution of patients according to clinical characteristics

Clinical characteristics		Number of patients (n)	Ratio(%)
History of stroke	Yes	21	21,6
	No	76	78,4
Location of upper limb weakness	Right	28	28,9
	Left	65	67,0
	Both sides	4	4,1
Risk of factor	Hypertension	81	83,5
	Diabetes	25	25,8
	Cardiovascular disease	13	13,4
	Use of Alcohol	48	49,5
	Smoke	51	52,6

Patients without a history of stroke accounted for 78.4% and patients with a history of stroke accounted for 21.6%. Patients with weakness on the left side account for 67%, weakness on the right side accounts for 28.9 and weakness on both sides accounts for 4.1%. The majority of patients have hypertension (83.5%). The number of patients with a history of smoking and alcohol use is 52.6% and 49.5%, respectively. Patients with diabetes account for 25.8% and cardiovascular disease accounts for 13.4%.

**B. Current status of the patient's quality of life before motor function rehabilitation care**

The highest quality of life of the patient according to mobility is 0.21 ± 0.11, the lowest is self-care 0.11 ± 0.06, the level of quality of life according to pain/discomfort is 0.20 ± 0.06, routine activities 0.14 ± 0.08 and anxiety 0.12 ± 0.04.

TABLE III. Average index of quality of life before motor rehabilitation care

Quality of life	Mean ± Standard Deviation
Walk	0,21 ± 0,11
Self care	0,11 ± 0,06
Regular activities	0,14 ± 0,08
Pain/discomfort	0,20 ± 0,06
Anxiety condition	0,12 ± 0,04
<b>Quality of life</b>	<b>0,22 ± 0,29</b>

TABLE IV. Patient's current health perception according to the EQ-VAS questionnaire

EQ - VAS	Mean ± Standard Deviation	Maximum value – minimum value
	48,1 ± 11,1	30 - 80

The health perception of stroke patients has an average score of 48.1 ± 11.1, of which the highest score is 80 and the lowest score is 30.

**C. Relationship between factors to quality of life scores before motor rehabilitation care**

The results show that age group is related to the average score of quality of life. Thereby, the age group 60 years and older accounts for the majority with 58 cases with an average score of 0.14 and has a lower quality of life than the group younger than 60 years old with an average quality of life score 0.36 (p<0.05). In accordance with the intervention study on 92 stroke patients treated at Hanoi Rehabilitation Hospital in 2022, it also recorded that the age group of stroke and ischemic stroke patients from 60 years old and older accounted for the majority with 61 years old. cases account for 66.3%, the remaining group under 60 years old accounts for 33.7%. This difference is statistically significant. [6]

Children are the caregivers with the highest proportion (45 cases), but the average quality of life score of this group is the lowest, 0.13 ± 0.29. However, the highest quality of life score was in the self-care group with an average score of 0.47 ± 0.16. In our study, we found that quality of life is related to the caregiver and the difference is statistically significant with p < 0.05. Self-care patients who are independent in daily activities have the highest average quality of life score, while patients who are dependent on others in daily activities have a low average quality of life score. Furthermore, this shows that independence in daily activities makes patients feel energetic, happy, and confident in life. On the contrary, patients who are dependent in daily activities will feel tired, depressed, have limited communication, and have reduced memory. Among the caregivers, the children group recorded the lowest quality of life scores among the remaining groups. When conducting research, we found that caregiving by children puts a huge burden on the patient, because the patient feels like they are a burden to their own children, as well as the generation gap in understanding and sympathize in the care and daily activities facing many inconveniences and obstacles. Therefore, in addition to the care of relatives, the care, closeness, and encouragement of medical staff is really necessary.

Quality of life in patients without a history of stroke (0.25 ± 0.29) was higher than in the group who had had a stroke before (0.09 ± 0.25). This result is similar to research on

stroke patients at Bach Mai Hospital Stroke Center in 2022 [7]. This difference is statistically significant.

TABLE V. Relationship between factors to quality of life scores before upper limb rehabilitation care

	n	Mean ± Standard Deviation	P
<b>SEX</b>			
Male	61	0.21 ± 0.30	P = 0,99*
Female	36	0.20 ± 0.27	
<b>Ages</b>			
< 60	39	0.36 ± 0.24	P = 0,01*
≥ 60	58	0.14 ± 0.28	
<b>Accommodation</b>			
Urban area	23	0.29 ± 0.24	P = 0,21*
Rural area	74	0.19 ± 0.30	
<b>Job</b>			
Officials	10	0.23 ± 0.22	P = 0,09**
Farmer	46	0.26 ± 0.27	
Trade	14	0.26 ± 0.28	
Retirement	27	0.10 ± 0.31	
<b>Academic level</b>			
Primary school	37	0.15 ± 0.30	P = 0,14
Secondary school	36	0.30 ± 0.28	
High school	9	0.22 ± 0.32	
College, University	6	0.26 ± 0.19	
<b>Tình trạng hôn nhân</b>			
Married	76	0.22 ± 0.28	P = 0,71**
Divorce	7	0.29 ± 0.22	
Widow/ widower	14	0.11 ± 0.33	
<b>Living circumstances</b>			
Alone	12	0.23 ± 0.31	P = 0,88**
Just husband and wife	32	0.23 ± 0.32	
Live with family	53	0.20 ± 0.26	
<b>Care components</b>			
Couple	27	0.20 ± 0.26	P = 0,02**
Children	45	0.13 ± 0.29	
Relatives/maids	8	0.22 ± 0.35	
Self care	17	0.47 ± 0.16	
<b>History of stroke</b>			
Yes	21	0.09 ± 0.25	P = 0,02*
No	76	0.25 ± 0.29	
<b>Location of upper limb weakness</b>			
Right	28	0.33 ± 0.27	P = 0,02**
Left	65	0.18 ± 0.28	
Both sides	4	- 0.02 ± 0.34	
<b>Hypertension</b>			
Yes	81	0.18 ± 0.29	P = 0,02*
No	16	0.36 ± 0.24	
<b>Diabetes</b>			
Yes	25	0.19 ± 0.27	P = 0,60*
No	72	0.22 ± 0.30	
<b>Cardiovascular disease</b>			
Yes	13	0.06 ± 0.27	P = 0,04*
No	84	0.24 ± 0.29	
<b>Use of Alcohol</b>			
Yes	48	0.20 ± 0.30	P = 0,37*
No	49	0.24 ± 0.28	
<b>Smoke</b>			
Yes	51	0.19 ± 0.31	P = 0,23*
No	46	0.25 ± 0.26	

\*:T test \*\* :Anova

This result is appropriate because subjects with previous strokes often have sequelae that hinder their quality of life after recovery. Therefore, before being hospitalized for a subsequent stroke, the patient will have encountered many

difficult problems that affect the quality of life, which will be different from the group of subjects who have never had a stroke before and have a good life. normal activities.

There is a statistically significant difference of  $p < 0.05$  in the location of the paralysis affecting the patient's quality of life. In particular, the lowest quality of life score is when the patient is paralyzed on both sides ( $- 0.02 \pm 0.34$ ) and the highest quality of life score is when the patient is paralyzed on the left side ( $0.33 \pm 0, 27$ ). This result is similar to the study by Pham Thi Le Hang and colleagues [8] conducted on stroke patients at Central Military Hospital 108 in 2019. This difference is statistically significant.  $P < 0.05$ .

Risk factors: hypertension and cardiovascular disease are proven high risk factors associated with stroke. We noted in this study the relationship between hypertension and cardiovascular disease with quality of life before intervention. In particular, patients with previous hypertension have a lower quality of life than patients without hypertension.

## V. CONCLUSION

Through research on 97 stroke patients before rehabilitation care at the Traditional Medicine Hospital of Dak Lak province, we draw the following conclusions:

The level of general quality of life of stroke patients receiving motor rehabilitation care is  $0.22 \pm 0.29$ .

There is a relationship between age group, care component, stroke history, location of weakness, blood pressure and cardiovascular disease to the quality of life of stroke patients before motor rehabilitation care.

## ACKNOWLEDGMENT

### A. On the hospital side

Develop a management program, providing comprehensive intervention solutions both physically, functionally, psychologically and socially to help improve the patient's quality of life.

Disseminate the current status of quality of life of stroke patients to departments and rooms so that medical staff can see the level of quality of life of stroke patients and related factors.

It is recommended to expand research, application and dissemination of interventions to improve the quality of life of patients and evaluate the effectiveness of such interventions on quality of life.

### B. For Medical staff

We need to realize the importance of patient-centered care. Closely monitor the patient's health status throughout the treatment process to adjust appropriate treatment and care regimens to help improve health status and improve the patient's quality of life. Attention should be paid to the patient's psychological problems

### C. For families and patients

There needs to be attention, care and encouragement both physically and mentally from family members or caregivers so that the patient can comply with treatment and monitor well,

contributing to improving quality of life. thereby helping patients quickly integrate and return to daily life effectively.

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