Original Article

Health Locus of Control and Quality of Life in Post-Stroke Patients in Aceh, Indonesia

Nova Safriana[1,2], Marlina Marlina[3], Fithria Fithria[4*]

ABSTRACT

OBJECTIVE: To determine the relationship between the health locus of control dimensions and the quality of life of post-stroke patients in Aceh.

METHODOLOGY: This study used a cross-sectional design involving 120 post-stroke outpatients selected using a total sampling technique. Data were collected using the Multidimensional Health Locus of Control Scale (MHLCS) and the Stroke Specific Quality of Life (SS-QoL) instrument. Data were analyzed using multiple logistic regression tests.

RESULTS: This study showed that powerful health locus of control (p = 0.000), internal health locus of control (p = 0.003), and chance health locus of control (p = 0.004) have a significant relationship with the quality of life of post-stroke patients. The most dominant factor was the powerful health locus of control (p = 0.000; OR = 4.111), closely related to the patient's quality of life.

CONCLUSION: Powerful health locus of control is the most dominant factor influencing the quality of life in post-stroke patients. Cognitive-based approaches and health education interventions can be implemented to enhance the powerful health locus of control in post-stroke patients.

KEYWORDS: Health Locus of Control and Quality of Life in stroke patients

INTRODUCTION

Stroke is one of the leading causes of disability and death worldwide[1]. This condition is one of the medical concerns in hospitals because it can cause poor health problems in patients[2]. Globally, stroke cases have increased by 50% over the past 17 years, with one person having a stroke every three seconds, with a total of 12.2 million new stroke cases each year. In 2019, 63% of stroke cases occurred in individuals under the age of 70[3].

According to American Heart Association data in 2019, stroke occurred in about 1 out of every 19 deaths in the United States. It ranked No. 5 among all causes of death in the United States. On average, every 3 minutes and 30 seconds, someone dies from a stroke that causes 150,005 deaths[4].

In 2020, there were 7.08 million deaths from cerebrovascular disease worldwide (3.48 million deaths from ischemic stroke, 3.25 million deaths from intracerebral hemorrhage and 0.35 million deaths from subarachnoid hemorrhage[5]. Based on the RISKESDAS Report (2019), the state of Indonesia was found to be 713,783 (10.9%). The highest number of cases occurred in East Kalimantan Province (14.7%), and Aceh Province occupied the 28th position with 13,389 cases (7.8%).

Stroke significantly impacts patients' quality of life, including various physical, psychological, social, and economic aspects. Their quality of life can decline drastically due to disability requiring special rehabilitation to achieve optimal functional recovery[6]. Factors affecting post-stroke patients' quality of life include family support, social reintegration, and health locus of control (HLC) [7]. Families often experience pressure to provide rehabilitation support, affecting the patient's quality of life. HLC is an individual's belief in the extent to which they can control their health and recovery after a stroke. Strengthening HLC in stroke patients is essential for maintaining patient health, especially in daily activities[6]. Health-related quality of life is part of the quality of life, which represents feelings, or the ability to feel satisfied with life, identified as an essential personality compromised by disease process or related deficit health[8].

Self-confidence and good physical activity are things that can have an impact on the quality of life in patients with stroke. Research by Ramos-Lima et al. stated that stroke patients who cannot do physical activity have a poor quality of life. Daily physical activity includes actions to care for the individual, including personal care, mobility, and eating[9].

Patients' dependence on continuous daily living activities will score lower in all domains of Quality of Life[10], potentially affecting stroke patients' quality of life in stroke patients[11]. Older stroke survivors may be at higher risk of being physically inactive[12]. Some factors that can modify post-stroke physical activity are that exercise contributes to improving health and

[1]*Master student of Nursing Program, Faculty of Nursing, Universitas Syiah Kuala, Banda Aceh, Indonesia*
[2]*RSUD dr. H. Yuliddin Away Tapaktuan South Aceh Regency, Aceh, Indonesia,*
[3]*Department of Medical-Surgical Nursing, Faculty of Nursing, Universitas Syiah Kuala, Banda Aceh, Indonesia*
[4]*Department of Family Health Nursing, Faculty of Nursing, Universitas Syiah Kuala, Banda Aceh, Indonesia*
Correspondence: *fithria@usk.ac.id*
doi: 10.22442/jlumhs.2025.01313

quality of life in stroke patients. In addition, it contributes to maintaining functional autonomy, reducing the risk of new cerebrovascular events and encouraging socialization if carried out in groups[13].

One factor influencing compliance rehabilitation is the Health Locus of Control in patients. Health Locus of Control is how much someone believes their actions determine their health[14]. Although there are differences, one considers that the factors responsible for a person's health are internal and external. Patients with Internal Health Locus of Control will believe their health is because of themselves. Hence, it becomes motivation or encouragement for you to continue rehabilitation regularly. People with good Internal Health Locus of Control try to obey treatment obediently[15].

Based on the description above, this study emphasizes the importance of Health Locus of Control (HLC) in improving the quality of life of stroke patients. This research can lead to more effective rehabilitation interventions. In addition, family and community support is also emphasized as an essential element in the recovery of stroke patients.

METHODOLOGY

Study Design

A quantitative study with a cross-sectional approach aimed to determine the relationship between the health locus of control dimensions and the quality of life of post-stroke patients.

Population and Sample

The population in this study involved a total sampling of 120 respondents of post-stroke patients who underwent outpatient treatment at the South Aceh Regional General Hospital, which was carried out from January 30 to March 8, 2024. (1) 2 enumerators assisted in data collection. The enumerator had previously been given an explanation regarding procedures for collecting research data and what must be done. Attention is paid to research ethics in data collection from respondents. (2) Meeting the head of hospital training and the head of the polyclinic room to explain that the researcher will conduct data collection research according to the specified sample. (3) Then, researchers and enumerators visited potential respondents. Introduce yourself and explain the purpose of the research to potential respondents. Explain that this research would not pose a risk to respondents. Confidentiality of respondent data is guarded by not writing the respondent's name in the questionnaire, and data obtained from respondents will only be used for research purposes. (4) After explaining, the researcher/enumerator asked the respondents to carefully read the research explanation sheet and the respondents' consent letter to see if they were willing to participate. The respondents were asked to sign a letter of consent from the respondents provided.

Instruments

This study used the Multidimensional Health Locus of Control Scale (MHLCS) Questionnaire with 18 items of Likert scale statements consisting of answer choices in the form of 1 = strongly disagree, 2 = somewhat disagree, 3 = slightly disagree, 4 = slightly agree, 5 = somewhat agree and 6 = strongly agree. In this study, the Stroke Specific Quality of Life (SS-QoL) questionnaire was also used which was divided into two groups; the first group discussed how difficult it was to carry out an activity with 27 question items, and the second group discussed a problem or feeling experienced by some people after a stroke with 22 question items.

Validity and reliability test results of the Multidimensional Health questionnaire Locus of Control Scale (MHLCS) valid results were obtained, and Cronbach alpha results were 0.934. The International Physical Activity Questionnaire (IPAQ) has been tested for validity and has a Content Validity Index (S-CVI) scale of 0.94, a reliability test with Cronbach Alpha results of 0.884.

Validity and reliability tests were carried out by translating the English SS-QOL into other languages in Indonesia and back into English. A total of 30 respondents, according to acceptance, SS-QOL interviews are conducted in Indonesian. The results of SS-QOL in Indonesian are based on SS-QOL in Indonesian-English. The SS-QOL in Indonesian has good construct validity, correlation strength >3, and question reliability overall is 0.92 based on Cronbach alpha. Intra Class Results Correlation shows a result of 0.984.

Data Analysis

The results of the data analysis used descriptive statistics, frequency, percentage, mean, standard deviation, and multiple logistic regression tests as the most influential factors in the health locus of control dimension.

Ethical Statement

The research obtained research ethics permission from the ethics commission of the Faculty of Nursing, Syiah Kuala University, on January 17 2024, with Number 112004121223.

RESULTS

Characteristics of respondent data

Table I shows the characteristic data of the respondents in this study: age, gender, education, and occupation.

Table I shows that of the 120 post-stroke respondents who received outpatient treatment at the Neurological Polyclinic of the South Aceh Regional General Hospital, 65 people (54.2%) were pre-elderly, 78 people (65.0%) were men, 51 people (42.5%) were in basic education (Elementary, Junior High), 58 people (48.3%) were self-employed.

Health Locus of Control Dimension Factors in Affecting Quality of Life

This analysis aims to determine the simultaneous relationship of all variables. The statistical test used is binary logistic regression with a stepwise method, as

seen in **Table II**.

The results of the analysis of **Table II** show that the variables of powerful health locus of control (Sig. = 0.000; OR: 4,111), Internal health locus of control (Sig. = 0.000; OR: 0.759), and chance health locus of control (Sig. = 0.004; OR: 2,634) is a significant predictor of quality of life in post-stroke patients. This analysis shows that the powerful health locus of control is the most dominant predictor related to quality of life in post-stroke patients with an OR value = 4.111 or powerful health locus of control can increase the quality of life of post-stroke patients by 4 times. The analysis results conclude that the higher the powerful health locus of control, the better the quality of life of post-stroke patients.

Table I: Characteristics of Respondents

Characteristic	Frequency	Percentage
Age (*mean*: 58.34; sd: 7.827)		
a. Adults	2	1,7
b. Pre-elderly	65	54,2
c. Elderly	53	44,2
Gender		
a. Male	78	65,0
b. Women	42	35,0
Education		
a. Height	25	20,8
b. Secondary	44	36,7
c. Elementary (Elementary, Junior High)	51	42,5
Work		
a. Civil Servant/Military/Police	6	5,0
b. Self-Employed	58	48,3
c. Fishermen	3	2,5
d. Farmers	10	8,3
e. Housewife	38	31.7
f. Not working/Unemployed	5	4,2

Table II: The Relationship between the Health Locus of Control Dimension and the Quality of Life of Post-Stroke Patients in Aceh

Predictor	B	OR	*Sig.*	95% CI	
				Lower	Upper
Powerful health locus of control	1,414	4,111	0,000	2,154	7,843
Internal health locus of control	-,276	0,759	0,522	0,327	1,764
Chance health locus of control	0,969	2,634	0,004	1,364	5,089
Constant	-2,821	0,060	0,000		

DISCUSSION

The results showed that of the 77 post-stroke patients with a powerful other health locus of control, all (100%) had a good quality of life. Statistical analysis also concluded that the higher the power of another health locus of control that patients have, the better their quality of life will be, with a 4-fold improvement in quality of life. The theory underlying these findings states that individuals with this locus of control believe their health is determined by those who help their rehabilitation process, such as nurses, doctors, and family. Patients' self-confidence shows that healthcare workers' role and quality of interventions greatly determine the end health outcomes and significantly contribute to improving their quality of life[16].

The concept of powerful others' health-related locus of control refers to the belief in one's health; this confirms that the interactions and treatment patients receive during rehabilitation significantly affect their quality of life[17]. Other studies show that patients who have high trust in health workers and themselves tend to show higher adherence to treatment. On the other hand, low confidence in health workers and themselves can lead to non-compliance, ultimately hurting patients' quality of life[18].

The study also revealed that post-stroke patients with a high chance of health locus of control tended to have a better quality of life. From the results of a study on 76 post-stroke patients with a high chance of health locus of control, it was found that 66 patients (86.8%) had a good quality of life. This theory states that individuals in this category believe their health is determined by fate, destiny, luck, or chance. They tend to accept their condition as it is, regardless of the outcome they experience[16].

Individuals with a high chance of health locus of control are likely to depend on luck or luck related to their health. These beliefs can affect their quality of life. However, individuals in this category tend to exhibit behavior that does not comply with the treatment regimen, thus not making the best effort to recover from the disease suffered. Based on these assumptions, these three factors can affect a person's quality of life obtained for himself[17].

In this case, the chance health locus of control is an individual's belief that something that happens to their health is determined by other things such as fate, luck and destiny. If an individual falls ill, he will think it is time to get sick or believe it is his destiny to get sick. In general, individuals with this category tend to exhibit behavior that does not comply with the treatment regimen, so these individuals do not do their best to recover from their illness[18].

The logistic regression analysis showed that the powerful others' health locus of control was the most related aspect to the quality of life of post-stroke patients (OR = 4.111). The higher the power of another health locus of control, the better the quality of life for patients with post-stroke; this is according to the statement that a person's beliefs significantly affect the quality of life obtained by the individual by the actions taken by him to overcome the problems experienced.

Similar research was done titled Relationship between

Health Locus of Control and Quality of Life of Patients Diabetes Mellitus (DM) at General Hospital in Jember. Results were obtained from data analysis with a p-value of 0.003 and an alpha value of 0.05; this means there is a relationship between the Health Locus of Control and the quality of life of DM sufferers at Citra Husada Hospital Jember. The r value = 0.512, which means the relationship between two correlated variables is trending towards a positive relationship[19].
Health Locus Control is defined as the belief of an individual based on experience with health problems, and having external or internal control over them can affect Health[17]. Health Locus Control plays a role in health behavior. Factors of Locus of control should be considered in any intervention program for stroke patients to improve their physical recovery[20]. The level of locus of control is different for each person because there are differences in judgment and experience over the life span. Some patients show more positive behavior when motivated to maintain their lives by getting treatment programs and regular rehabilitation. So, they feel they can still do their activities like other people, even if only a little; this is where they encourage them to try to be independent in carrying out the needs of daily activities.
From the results of this study, it can be concluded that the powerful health locus of control is the most related factor to the quality of life in post-stroke patients, where the actions taken by nurses, doctors, and other health workers affect the quality of life of stroke patients considering that most patients affected by stroke tend to have resigned to the situation experienced so that there is no enthusiasm for life and can trigger a decrease in quality Life. Based on this, it is appropriate for health workers to do better so that patients remain enthusiastic even with physical conditions that are no longer in prime condition.

CONCLUSION

The results showed that the powerful health locus of control dimension had a significant relationship and was the dominant factor affecting the quality of life of post-stroke patients. The better the *powerful health locus of control* formed by the patient, the better *the patient's quality of life* after the stroke. Therefore, interventions that strengthen the health locus of control in post-stroke patients can be implemented to improve their overall quality of life.

ACKNOWLEDGEMENT

We extend our gratitude to the Human Resources Development and Empowerment Agency of the Ministry of Health, Republic of Indonesia, for funding this research, the Human Resources Development Agency of South Aceh Regency, and the Director of Dr. H. Yuliddin Away General Hospital, Tapaktuan, South Aceh, for facilitating this research, as well as all respondents who shared their time, experiences, and participation in this study.

Ethical Permission: Faculty of Nursing, Syiah Kuala University, Indonesia, ERC letter No. 112004121223.

Conflict of Interest: No conflicts of interest, as stated by authors.

Financial Disclosure / Grant Approval: The Health Human Resources Development and Empowerment Agency of the Ministry of Health of the Republic of Indonesia supported this study.

Data Sharing Statement: The corresponding author can provide the data proving the findings of this study on request. Privacy or ethical restrictions bound us from sharing the data publicly.

AUTHOR CONTRIBUTION

Safriana N: Research design, data collection, and data analysis.
Marlina M: Research design, data interpretation, review, and revision.
Fithria F: Research design, data interpretation, review, and revision.
All authors agree to this article for publication.

REFERENCES

1. Lavados PM, Hoffmeister L, Moraga AM, Vejar A, Vidal C, Gajardo C et al. Incidence, risk factors, prognosis, and health-related quality of life after stroke in a low-resource community in Chile (ÑANDU): a prospective population-based study. Lancet Glob Health. 2021; *9*(3): e340-e351. doi: 10.1016/S2214-109X(20)30470-8.
2. Bray B, Rudd A, White P, Norrving B, Wolfe C. Patients with Stroke. 2016; Volume 2013. Cambridge University Press.
3. Ramos-Lima, MJM, Brasileiro I de C, de Lima TL, Braga-Neto P. Quality of life after stroke: Impact of clinical and sociodemographic factors. Clinics. 2018; 73: 1-7. doi: 10.6061/clinics/2017/e418.
4. Organization WS. Global Stroke Fact Sheet 2022. 2022; 1–14. Available from: https://www.world-stroke.org/assets/downloads/WSO_Global_Stroke_Fact_Sheet.pdf.
5. Tsao CW, Aday AW, Almarzooq ZI, Alonso A, Beaton AZ, Bittencourt MS et al. Heart Disease and Stroke Statistics-2022 Update: A Report from the American Heart Association. Circulation. 2022; 145(8). doi: 10.1161/CIR.0000000000001052.
6. Russo S, Jongerius C, Faccio F, Pizzoli SFM, Pinto CA, Veldwijk J et al. Understanding Patients' Preferences: A Systematic Review of Psychological Instruments used in Patients' Preference and Decision Studies. Value in Health. 2019; 22(4): 491-501. doi: 10.1016/j.jval.2018.12.007.
7. Mostafavian Z, Abbasi SZ, Faraj P A, Hosseini G. The data on health locus of control and its relationship with quality of life in HIV-positive patients. Data in Brief. 2018; 18: 1967-1971. doi: 10.1016/j.dib.2018.04.131.
8. Sandau Kristin E, Bredow Timothy S, Peterson

SJ. Health-related quality of life. Nursing Faculty Publications. 2015; 13. Available from: https:// spark.bethel.edu /nursing-faculty/13.
9. Mlinac ME, Feng MC. Assessment of Activities of Daily Living, Self-Care, and Independence. Arch Clin Neuropsychology. 2016; 31: 506-516. doi: 10.1093/arclin/acw049.
10. Fatema Z, Sigamani AGV, Manuel D. Quality of life at 90 days after stroke and its correlation to activities of daily living: A prospective cohort study. Journal of Stroke and Cerebrovascular Diseases. 2022; 31(11): 106806. doi: 10.1016/ j.jstrokecerebrovasdis. 2022.106806.
11. Kaffenberger T, Bernhardt J, Koehler JL, Ziegler PD, Thijs VN. Ambulatory activity in stroke survivors associated with functional outcome and quality of life: An observational cohort study. Ann Physical Rehabil Med. 2022; *65*(2): 101540. doi: 0.1016/j.rehab.2021.101540.
12. Thilarajah S, Mentiplay BF, Bower KJ, Tan D, Pua Y H, Williams G et al. Factors Associated With Post-Stroke Physical Activity: A Systematic Review and Meta-Analysis. Arch Physical Med Rehabil. 2018; 99(9): 1876-1889. doi: 10.1016/j. apmr.2017.09.117.
13. Belfiore P, Miele A, Gallè F, Liguori G. Adapted physical activity and stroke: A systematic review. J Sports Med Physical Fitness. 2018; 58(12): 1867-1875.doi:10.23736/S0022-4707.17.07749-0.
14. Katuuk M, Gannika L. The Relationship of Health Locus of Control With Compliance With Insulin Therapy In Type II Diabetes Mellitus Patients at RSU GMIM Pancaran Kasih Manado. J Nursing. 2019; 7(1). doi: 10.35790/jkp.v7i1.25225.
15. Antari GAA. Health Locus of Control in Terminal Renal Failure Patients Undergoing Hemodialysis. Commun Publish Nurs. 2020; 8(2): 163-8.
16. Wallston KA, Wallston BS, DeVellis R. Development of the Multidimensional Health Locus of Control (MHLC) Scales. Health Educ Behav. 1978; 6(1): 160-170. doi: 10.1177/109019 817800600107.
17. Rogowska MA, Zmaczynska-Witek B, Mazurkiewicz M, Kardasz Z. The Mediating Effect of Self-Efficacy on the Relationship Between Health Locus of Control and Life Satisfaction: A Moderator Role of Movement Disability. Disabil Health J. 2020. doi: 10.1016/j.dhjo.2020.100923.
18. West LM, Theuma R B, Cordina M. Health Locus of Control: Its Relationship with Medication Adherence and Medication Wastage. Research in Social and Administrative Pharmacy. 2017; 14: 1015-1019. doi: 10.1016/j.sapharm.2017.12.003.
19. Ramadhan AR. The Relationship between Health Locus of Control and the Quality of Life of Diabetes Mellitus (DM) Sufferers at Citra Husada Hospital, Jember (Doctoral dissertation, Universitas Muhammadiyah Jember).
20. Wulandari LPL, Whelan AK. Belief, Attitudes and Behaviours of Pregnant Women in Bali. Midwifery. 2011; 27: 867-871. doi: 10.1016/j.midw.2010.09. 005.
21. Pourhoseinzadeh M, Gheibizadeh M, Moradikalboland M, Cheraghian B. The relationship between health locus of control and health behaviors in emergency medicine personnel. Int J Commun Based Nurs Midwife. 2017; 5(4): 397-407.
22. Zulkifly M, Faizal M, Ghazali ES, Din C, Normah D, Asmawati, Raymond AA. The ability of recovery locus of control scale (RLOC) and post-traumatic stress symptoms (PTSS) to predict the physical functioning of stroke patients. Malaysian J Med Sci. 2015; 22(5): 31-41.