

ORIGINAL ARTICLE

Factors That Influence the Quality of Life of Post-Stroke Patients

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ABSTRACT

Introduction: Stroke has a significant impact on patients' quality of life. Factors influencing the quality of life of post-stroke patients include family social support, self-efficacy, and coping mechanisms. However, few studies have examined the combined effects of these three factors using an integrated model, especially in the Sukabumi City area. This study aims to determine the direct and indirect effects of those factors on the quality of life of post-stroke patients. **Methods:** This study used a quantitative design and cross-sectional approach; by which involved 47 respondents selected through total sampling. Data were collected using the GSES, PSS-Fa, Brief-COPE, and SS-QoL questionnaires. Path analysis was conducted for data analysis. **Results:** Family support has a direct effect ($b = 0.181$, $p = 0.000$) and indirect effects through self-efficacy ($b = -0.824$, $p = 0.000$) and coping mechanisms ($b = 0.479$, $p = 0.000$). Self-efficacy has a direct effect ($b = 0.085$, $p = 0.000$) and an indirect effect through coping mechanisms ($b = 0.488$, $p = 0.000$). Coping mechanisms has a direct effect ($b = 0.1044$, $p = 0.000$) on quality of life. Multivariate analysis showed that family support indirectly affected quality of life through self-efficacy and coping mechanisms ($b = 0.526$), while self-efficacy also had an indirect effect through coping mechanisms ($b = 0.158$). **Conclusion:** Family support, self-efficacy and coping mechanisms significantly affect the quality of life of post-stroke patients.

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or 10.9% of the total Indonesian population. East Kalimantan has the highest stroke rate at 14.7 per mile, DIY 14.5 per mile, then Papua 4.1 per mile and South Sulawesi with 10.6 patients per mile (2-6).

INTRODUCTION

The WHO states that Non-Communicable Diseases (NCDs) are the leading cause of death and disability worldwide. A reported 41 million deaths are recorded each year, which is 71% of all deaths from NCDs. Some of the causes of NCDs include population aging, unplanned rapid displacement, and globalization of unhealthy lifestyles. Although NCDs are usually associated with older age, recent studies have shown that 15 million of the 41 million annual deaths from NCDs occur in 30 to 69 year olds (1). Stroke is a non-communicable disease that is the second leading cause of death. Based on data from the world stroke organization, every year there are about 13.7 million new cases and about 5.5 million deaths from stroke, with an estimated global stroke prevalence expected to increase gradually to reach 21.9% by 2030. According to the Southeast Asian Medical Information Center (SEAMIC), the highest stroke mortality rate occurs in Indonesia, followed by the Philippines, Singapore, Brunei Darussalam, Malaysia, and Thailand. Basic Health Research (RISKESDAS) in 2018 revealed that there were 713,783 stroke cases

Stroke is a disease of the brain characterized by localized impairment of nerve function that appears suddenly, develops rapidly, and is progressive. Based on the cause, stroke is divided into two, namely hemorrhagic stroke and ischemic stroke. Hemorrhagic stroke is caused by bleeding due to rupture of blood vessels in the brain, while ischemic stroke occurs when brain cells experience a lack of oxygen and nutrients which causes narrowing and blockage of blood vessels in the brain (5). Causes of stroke include thrombosis, embolism, hemorrhage as well as other factors such as cerebral artery spasm due to infection, decreased blood flow to the brain, and hypercoagulable conditions. Factors that may increase the risk of stroke include age, high blood pressure, previous history of stroke, diabetes, high cholesterol, smoking, atrial fibrillation, migraine with aura, and thrombophilia (predisposition to thrombosis). Among all these factors, high blood pressure and smoking are the easiest to control. As many as 80% of strokes can be prevented by managing risk factors (5).

Stroke is a serious disease that can cause permanent disability with symptoms that vary depending on the

treatment process and location of the lesion, and creates significant burden and suffering for family caregivers. Permanent disability due to stroke limits a person's ability to carry out daily activities, such as personal hygiene, toileting, eating, dressing, physical activity, and mobility, which are essential to fulfill basic human needs (7). Stroke can affect the quality of life in various aspects. Quality of life is defined as an individual's impression of their place in life within the framework of the culture and value system in which they live, as well as the individual's goals, expectations, standards and concerns. Quality of life measures a patient's overall physical, mental, and emotional well-being at a given time (8).

One of the factors that influence the quality of life of stroke patients is self-efficacy. Patients with high levels of self-efficacy tend to be able to cope with the negative impact of the disease and its treatment. Self-efficacy becomes even more important in the case of diseases that limit physical function and require long-term rehabilitation. The stronger one's belief in self-efficacy, the higher the targets one sets for oneself and the greater the commitment to achieve them. Such targets could be the restoration of full physical fitness or a return to the professional and social roles held before the onset of the illness (9).

The next factor that affects the quality of life of stroke patients is coping mechanisms. Coping strategies are actions that individuals take when facing certain situations. The ability to use coping strategies is very important for patients because it will have an impact on the patient's physical and psychological well-being. Coping strategies are divided into 2, namely problem-focused and emotion-focused. Maladaptive coping strategies can have a negative impact on the physical condition of post-stroke patients. The impact can include negative self-concept, unstable emotions, sensitivity, refusing disability, feeling a loss of life purpose, and others. This impact will affect the quality of life of stroke patients, reducing their productivity in carrying out daily activities and increasing the risk of recurrent stroke (3).

Family support is another factor that affects the quality of life of stroke patients. This support plays an important role as a form of assistance provided by family members to provide physical and psychological comfort and social support when someone is experiencing illness. There are various forms of family support including emotional support, appreciation support, instrumental support and informational support. Instrumental support involves assistance in rehabilitation therapy while appreciation support is realized through attention and gratitude. Family support plays an important role in the recovery process, increasing independence, confidence and reducing disability (5).

In West Java Province, Sukabumi is classified as a

second-level region, which is divided into 7 regions and 15 health centers. One of these is the Cibeureum Hilir Puskesmas, which serves a significant number of stroke patients requiring long-term care and support. Although various studies have examined factors such as family support, self-efficacy, and coping mechanisms in relation to the quality of life of post-stroke patients, few have analysed the combined direct and indirect pathways of these variables within a single model. Additionally, research focusing on the post-stroke population in a local context such as Sukabumi remains limited. The objective of this study is to determine the direct and indirect effects of family support, self-efficacy, and coping mechanisms on the quality of life of post-stroke patients in the Cibeureum Hilir Health Centre area of Sukabumi City.

MATERIALS AND METHODS

Study Design

This study was a correlational study with a cross-sectional approach conducted in the working area of the Cibeureum Hilir Health Center, Sukabumi City. Ethical clearance was obtained prior to data collection (No: 000882 / KEP STIKES SUKABUMI / 2024).

Sample

The population of this study was all stroke patients recorded in the Cibeureum Hilir Health Center report, Sukabumi City, with a sample determined through a total sampling technique, namely 47 patients. Inclusion criteria include post-stroke patients who are willing to be respondents, post-stroke patients who live with family and live in the working area of the Cibeureum Hilir Health Center and elderly patients aged between 45-59 and ≤ 60 years. While the exclusion criteria are post-stroke patients who experienced worsening conditions during the selection process.

Instrument

The data collection method used a questionnaire, where the instruments used were the Specific Quality of Life (SS-QoL) questionnaire showing reliability with Cronbach's alpha of 0.7 and validity with Intra Class Correlation of 0.8 (10), Perceived Social Support from Family (Pss-Fa) Indonesian version with Cronbach's α coefficient of 0.752 and correlation coefficient for validity $r = 0.361$, General Self-Efficacy Scale (GSES) Indonesian version validity value with Pearson correlation ranging from 0.52 to 0.707 and Cronbach's alpha coefficient has a value of 0.847 and The Brief-COPE (Coping Orientation to Problems Experienced) with Cronbach's alpha coefficient 0.72 to 0.82 and a validity test result of 0.85 (11).

Data Analysis

Data were analyzed using univariate calculations, including frequency distribution, bivariate analysis, and multivariate analysis using path analysis with a 95%

confidence level. All of the statistical analyses were performed using the SPSS statistical software package (version 26).

RESULTS

A total of 47 post-stroke patients participated in this study. The characteristics of the respondents are presented in Table I. Most respondents were aged 45–59 years ($n = 32$, 68.1%), male ($n = 39$, 83.0%), not working ($n = 40$, 85.1%), and had experienced stroke for less than 6 months ($n = 26$, 55.3%). In terms of education level, the largest proportion of respondents had college-level education ($n = 14$, 29.8%).

Table I : Characteristics of Respondents (n=47)

Respondent Characteristics	N	Percentage (%)
Age		
45 - 59 years	32	68.1
>60 years	15	31.9
Gender		
Male	39	83.0
Female	8	17.0
Education		
Elementary school	12	25.5
Junior High School	9	29.8
High School	12	25.5
College	14	19.1
Employment Status		
Work	7	14.9
Doesn't work	40	85.1
Duration of Stroke		
< 6 bulan	26	55.3
≥ 6 bulan	21	44.7

The descriptive statistics of the study variables are shown in Table II. The mean scores for family support, self-efficacy, coping mechanisms, and quality of life were 60.4 (SD = 17.95), 46.3 (SD = 1.47), 91.2 (SD = 1.37), and 178.3 (SD = 39.52), respectively.

The path analysis model is presented in Figure 1, while the direct, indirect, and total effects of the independent variables on quality of life are summarized in Table III. Family support had a significant direct effect on quality of life ($b = 0.181$, $p < 0.001$) and an indirect effect through self-efficacy and coping mechanisms ($b = 0.526$), resulting in a total effect of 0.707. Self-efficacy also had a significant direct effect on quality of life ($b = 0.085$, $p < 0.001$) and an indirect effect through coping mechanisms ($b = 0.158$), with a total

Table II : Univariate Analysis

Variables	Mean	SD	Min	Max
Family Support	60.4	17.95	28	80
Self Efficacy	46.3	1.47	21	70
Coping mechanisms	91.2	1.37	70	110
Quality of life	178.3	39.52	107	219

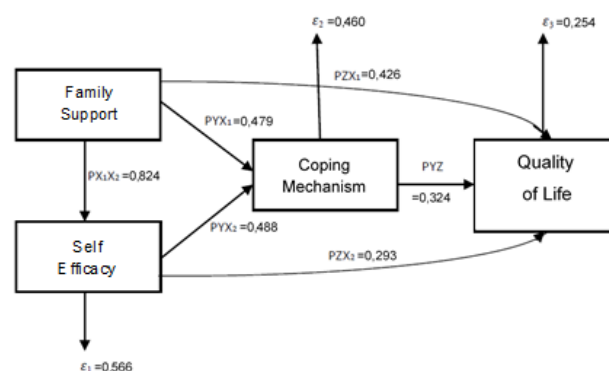


Figure 1: Path Analysis Model of Quality of Life of Post-Stroke Patients

effect of 0.243. Coping mechanisms had a significant direct effect on quality of life ($b = 0.104$, $p < 0.001$).

Overall, family support showed the largest total effect on quality of life among post-stroke patients, followed by self-efficacy and coping mechanisms, as shown in Table III.

Table III : Direct Effect, Indirect Effect and Total Effect of Independent Variables on the Quality of Life of Post-Stroke Patients

Variables	Direct Influence	P-Value	Indirect Effect	Total Influence
Family support	0.181	0.000	$0.824 \times 0.293 + (0.479 \times 0.324) + (0.824 \times 0.488 \times 0.324) = 0.526$	0.707
Self efficacy	0.085	0.000	$0.488 \times 0.324 = 0.158$	0.243
Coping Mechanism	0.104	0.000	-	0.104

DISCUSSION

Direct and Indirect Influence of Family Support on Quality of Life

The results of the study showed that there was a direct and indirect influence of family support on the quality of life of post-stroke patients in the Cibeureum Hilir Health Center Work Area, Sukabumi City. Family support is the availability or provision of relationships, information or assistance that empowers a person to manage their daily lives effectively in the presence or absence of a crisis, including illness (12). The function of the family for post-stroke patients is to provide protection, recovery, maintain balance in meeting daily needs with the form of support through direct or indirect supervision in activities such as helping them with medical appointments, providing care, helping them with housework, and offering transportation (13). Whether it is total assistance, partial assistance, or independent, the role of the family in helping patients allows them to adjust to their independence again (12). Emotional assistance is provided such as encouraging them to engage in outdoor activities, talking to people around them, and utilizing health facilities to achieve well-being during their lives, developing hope in life

and improving quality of life (14).

Good family support can increase patient self-efficacy, help them adopt positive coping mechanisms, and promote changes in their mindset. Post-stroke patients with good family support can increase higher self-efficacy and can be used to strengthen their own level of psychological resilience in the rehabilitation process, increase closeness between family members, and also build positive family trust so as to improve adaptation to the disease, avoid unpleasant personal experiences, encourage choices to accept the disease, and identify important personal values, ultimately family support can help improve the quality of life of post-stroke patients (15,16). Self-efficacy plays an important role as a mediator in the relationship between family support and quality of life in post-stroke patients. Individual beliefs in their ability to achieve certain outcomes play a role in shaping behavioral outcomes that significantly contribute to shaping individual beliefs about their abilities through interactions and feedback from their social environment, which ultimately leads to greater self-confidence in performing daily activities. This has an impact on increasing the quality of life of post-stroke patients (17).

Family support is a stimulus that reduces external stressors and tensions, acting as a buffer against external distress through effective coping mechanisms that are built (18,19). A good family atmosphere can enable families to maintain emotional bonds in dealing with stress in post-stroke patients to form adaptive coping mechanisms by teaching the meaning of positive thinking and how patients should accept their condition sincerely and always be grateful for their condition, thereby increasing their functional capacity (3, 15). This impact will affect the quality of life of post-stroke patients, so that the patient's productivity in carrying out daily activities decreases which increases the risk of recurrent stroke (3).

Family is the closest group of people who connect and interact with people when they face difficulties. When someone faces a problem, family is often the first source of information, making them feel accompanied, cared for, and supported in solving their problems. Furthermore, supportive actions like this can encourage people to remain enthusiastic and confident in their ability to overcome the challenges they face.

Direct and Indirect Effects of Self-Efficacy on Quality of Life

The results of the study showed that there were direct and indirect effects of self-efficacy on the quality of life of post-stroke patients in the Cibeureum Hilir Health Center Work Area, Sukabumi City. Self-efficacy is a psychological construct defined as a belief in one's ability to organize and carry out the actions needed to produce certain achievements. Self-efficacy is

considered the main basis for every decision to act and appears as a previous step in the process of completing a task. The measure of post-stroke self-efficacy allows an individual's confidence in their functional performance after stroke to be assessed (20). Stroke survivors who showed high self-efficacy had fewer activity limitations. This can affect locomotor (walking) ability and community reintegration (reorganization of physical, psychological, and social characteristics), thus having a significant impact on the quality of life of post-stroke patients (20).

Increasing self-efficacy in stroke survivors helps adapt and cope with their illness, increases involvement in daily life activities, reduces depression, makes it easier to deal with various problems that arise, resulting in successful self-efficacy characterized by reduced impact of disability, increased ability, improved quality of life, and decreased symptoms of depression (21). Self-efficacy basically comes from exploring an individual's ability to manage and cope with stress which is manifested in adaptive coping mechanisms, which are the ability to overcome difficulties, be more confident in dealing with stress, and be able to fight feelings of helplessness through a dynamic response process from the motivation-cognition-choice-emotion response process (15). Belief in one's personal abilities supports the achievement of success and provides additional energy to act. The stronger a person's self-efficacy beliefs, the higher their personal goals and the stronger their commitment to achieving them, even in the face of difficulties (9,22).

Self-efficacy is essential as a self-regulation mechanism in various chronic diseases, such as cancer, infectious diseases, neurodegenerative diseases, or cystic fibrosis, including stroke. Patients with high self-efficacy are better able to cope with the negative consequences of their disease and its treatment. The importance of self-efficacy appears to be greater in the case of diseases that limit physical function and require long-term rehabilitation. The stronger a person's self-efficacy beliefs, the higher their self-goals and the stronger their commitment to achieving them. These goals can help patients regain full physical fitness or return to their professional and social roles from before the onset of the disease (9).

Coping mechanisms are variables that play an important role as mediators in the relationship between self-efficacy and quality of life in post-stroke patients. Engage in proactive, problem-focused coping strategies, such as adhering to rehabilitation programmes, applying information, and adapting to new limitations. This adaptive coping behaviour is a vital psychological resource that enables patients to effectively manage the residual clinical manifestations of stroke. By actively facing their situations and finding meaning in life, patients can shift their self-perspective, cultivate a

sense of purpose, accept their new reality, and develop positive thoughts, which collectively lead to improved life satisfaction and overall quality of life in physical, psychological, and social domains. Thus, coping mechanisms act as mediators, amplifying the positive effects of self-efficacy in enhancing the quality of life for post-stroke patients (23).

The Influence of Coping Mechanisms on Quality of Life
The results of the study also showed that there was an influence of coping mechanisms on the quality of life of post-stroke patients in the Cibeureum Hilir Health Center Work Area, Sukabumi City. Coping mechanisms refer to psychological and behavioral efforts used to manage specific external or internal demands on an individual and are designed to change stressful circumstances and regulate the emotional distress associated with those situations. Coping mechanisms have two main functions, namely dealing with the problems that cause stress (problem-focused coping) and regulating emotions (emotion-focused coping) (23)(24). Active problem-focused coping mechanisms can improve psychological outcomes in post-stroke patients by fostering a tendency to engage in intrapersonal communication about kindness, compassion, and acceptance. This has an impact on reducing stress for those facing chronic situations such as post-stroke patients, thereby helping them adapt better and improving overall well-being (23). Feelings of guilt, anger, and sadness are negative emotions that can arise after experiencing an unexpected or uncontrollable event that limits function, such as a stroke. Avoiding facing the disease is associated with negative outcomes. This creates feelings of helplessness and lack of acceptance of the condition being faced. As a result, additional repeated stress can arise, thus inhibiting the adoption of healthy behaviors (23).

Researchers argue that coping mechanisms are very important for patients, because they will affect physical and psychological outcomes, which are divided into two, namely problem-focused coping and emotion-focused coping. Maladaptive coping mechanisms have a negative impact on post-stroke patients physically and psychologically, such as a negative self-concept, emotional sensitivity, denial of disability, loss of purpose in life, and others. These impacts will affect the quality of life of post-stroke patients, so that the patient's productivity in carrying out daily activities decreases, resulting in an increased risk of recurrent stroke.

Another factor that can affect the quality of life of post-stroke patients is age. Elderly people who experience a stroke tend to face more complex problems due to the natural decline in organ function and structure that comes with age (25). Unlike younger stroke patients, who generally have better brain tissue regeneration and flexibility, the recovery process in terms of physical, motor, and cognitive aspects is faster (26).

Environmental factors also influence the quality of life of stroke patients, as they directly impact their ability to reintegrate into society and perform daily activities. An unsupportive environment can hinder the mobility and independence of stroke patients, which are crucial aspects in performing meaningful activities and maintaining independence. Environmental barriers, such as limited access to mobility products and technologies, have a negative impact on disability levels. Conversely, supportive factors, such as a supportive social environment, can enhance recovery outcomes (27).

The findings of this study have implications for clinical practice and health policy development, particularly in post-stroke management that focuses on improving patients' quality of life. The finding that family support, self-confidence, and coping mechanisms significantly influence quality of life suggests that post-stroke interventions should not solely focus on medical and physical rehabilitation aspects. Clinical practice should adopt a holistic approach that includes psychosocial support and patient empowerment through enhancing self-confidence and training in adaptive coping mechanisms. In this context, healthcare professionals such as nurses, physical therapists, and clinical psychologists need to collaborate in designing integrated intervention programs that include family counseling, psychosocial education, and strengthening patients' abilities to cope with chronic post-stroke conditions. Additionally, these findings can serve as a basis for formulating health policies that support the integration of family-based rehabilitation services in primary and secondary healthcare facilities. Local and national governments should consider developing guidelines that emphasize the importance of family involvement and psychosocial interventions in stroke patient recovery to optimize overall and sustainable quality of life.

CONCLUSION

Family support, self-efficacy and coping mechanisms significantly affect the quality of life of after stroke patients. The family support variable has an indirect effect on quality of life through self-efficacy and coping mechanisms. Self-efficacy and coping mechanisms indirectly affect quality of life.

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