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ANALYSIS OF FACTORS ASSOCIATED WITH *SELF CARE* IN POST-STROKE PATIENTS AT THE ISLAMIC HOSPITAL CEMPAKA PUTIH, JAKARTA

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Abstract

Stroke is the third highest level of disability in the world. The prevalence of disability in Indonesia is 13.88% (4,270 people) with dependency levels including 36.33% independent, 33.25% mild dependency, 7.10% moderate dependency and 9.43% severe dependency. Basic Health Research in 2018 showed that DKI Jakarta was in 11th place with the highest stroke prevalence at 12.2%. This research aims to analyzed factors associated with self-care in post-stroke patients at RSIJ Cempaka Putih. This research used a quantitative research design using an analytical study with a cross sectional approach. The Bivariate results show that there is a relationship between independent variables including age, gender, education, physical domain, emotional domain and social domain. Multivariate results show that the most dominant factors related to self-care include the social domain, education and age. The factors most related to self-care in post-stroke patients in this study are the social domain, education and age. The findings suggest health workers to be able to carry out holistic assessments (bio, psycho, social and spiritual) including exploring sources of support for patients in carrying out self-care, carrying out therapeutic communication and providing innovative group activities that can be carried out in stroke clubs

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INTRODUCTION

The prevalence of disability in Indonesia is 13.88% (4,270 people) with a level of dependency including 36.33% independent, 33.25% light dependency, 7.10% moderate dependency and 9.43% heavy dependency. The 2018 Basic Health Research showed that DKI Jakarta was ranked 11th with the highest stroke prevalence of 12.2%. Research conducted by Ferawati stated that the physical impacts of a stroke include paralysis on one side, impaired coordination and body balance which require a long time to recover, while the psychological impacts that occur include depression or anxiety, anger, confusion and frustration (1). Post-stroke patients experience physical disorders including motor, sensory, visual dysfunction and limitations in meeting daily activity needs (2). Physical disabilities experienced by post-stroke patients include paralysis and communication disorders, partial or complete loss of motor function of 50%, 26% experience dependence in daily activities, 19% experience aphasia (3).

Disability to loss of physical function experienced by post-stroke patients causes emotional changes including 30% experiencing depression, 27% experiencing apathy, 22% experiencing general anxiety disorder (4). Psychological disorders can also occur in stroke patients due to negative assessments of themselves as physically helpless, weak, worthless and fear of terrible events that may occur, causing discomfort in post-stroke patients (5).

Stroke patients need time to be able to adapt in carrying out self-care (6). Based on the results of research

conducted by Puri & Setyawan, it was stated that respondents who experienced self-care in the poor category were 43%, where this figure is still quite large because it is close to the number of samples taken in the study (7). This study focuses on self-care in post-stroke patients including self-care maintenance, self-care monitoring and self-care management, so the instrument that will be used is the Self Care of Chronic Illness Inventory.

The purpose of this study was to analyze factors related to self-care in post-stroke patients at the Jakarta Islamic Hospital Cempaka Putih.

METHODS

This research design used a cross-sectional approach. This research analysis used with chi-square (bivariate) and multiple logistic regression (multivariate). The result of analysis bivariate self care with include; age (0,054), gender (0,039), education (0,000), economic status (0,001), type of stroke (0,147), stroke frequency (0,129), physic domain (0,050), cognitive domain (0,074), emotional domain (0,050), communication domain (0,073), social domain (0,000), family support (0,154).

Analysis data used software SPSS. The sample size in this study was calculated using the G-Power application statistics by entering effect size 0.15, α err prob 0.05, power 0.80 so the results obtained were a total sample size of 114. Researchers also added drop outs as many as 10% of 114 in anticipation that there would be respondents who withdrew for certain reasons, resulting in the total sample as a whole as many as 126 respondents. The study was conducted at Jakarta Islamic Hospital Cempaka Putih in July 2023. Inclusion criteria in this study include 1) age ≥ 18 years, history of stroke > 3 months, diagnosed with hemorrhagic or ischemic stroke, experiencing decreased functional ability, conscious and able to answer questionnaires, and fully cooperative. (8,9) Exclusion criteria include patients with mental health problems, patients with a history of dementia before stroke, aphasia so that respondents are not allowed to participate in this study.

The instruments in this study included Demographic Questionnaire, *Stroke Impact Scale Version 3.0 Questionnaire*, *Self Care of Chronic Illnes Inventory Questionnaire* and Family Support Questionnaire. The questionnaire has been tested for validity using *Pearson Product Moment correlation* and reliability using *Cronbach Alpha test.* The decision of the validity of the questionnaire item is the calculated r value > r table (0.361). The *Stroke Impact Scale Version 3.0 questionnaire* has a reliability test value of 0.890, meaning it is reliable for use. The *Self Care of Chronic Illnes Inventory questionnaire* has a reliability test value of 0.942, meaning it is reliable for use. The Family Support Questionnaire has a reliability test value of 0.994, meaning it is reliable for use.

This study has been to ethical review at the Muhammadiyah University of Jakarta with the letter number 1568./F.9-UMJ/XI/2023. The ethics in this study are as follows : 1) Having an attitude of respecting human dignity, namely the researcher does not force respondents in terms of conveying information, 2) Maintaining the privacy and confidentiality of research subjects, namely the researcher does not display the identity and confidentiality of research respondents, 3) Fairness and openness, namely the researcher provides a complete explanation of the purpose and procedures of the research and then the researcher also provides souvenirs as appreciation for respondents for participating in the research, 4) Taking into account the benefits and disadvantages incurred, namely the researcher conveys from the beginning to the respondent that if the respondent suddenly feels uncomfortable in filling out the questionnaire, the researcher is open to the response of the respondent who has the right to decide whether or not to continue to be a research respondent. During the study, no discomfort was found in the respondents due to filling out the questionnaire.

RESULTS AND DISCUSSION

Univariate Results

Distribution of Respondents Based on Respondent Characteristics in Outpatient (Neurology & Rehabilitation Polyclinic) Jakarta Islamic Hospital Cempaka Putih, (n.126), 2023

Variables	Frequency	Persentage
Age		
≥ 60 year (Elderly)	77	61.1
45 – 59 year (Pre Elderly)	41	32.5
19 – 44 year (Mature)	8	6.3
Total	126	100
Type Sex		
Man	65	51.6
Woman	61	48.4
Total	126	100
No Work	92	73.0
Work	34	27.0
Total	126	100
Status Economy (Income)		
No Own Income	71	56.3
≤ Minimum Wage	15	11.9
> Minimum Wage	40	31.7
Total	126	100
Education		
No School	2	1.6
Low (Elementary School, Middle School)	35	27.8
Tall (High School, College)	89	70.6
Total	126	100
Type Stroke		
Stroke Hemorrhagic	51	40.5
Stroke Ischemic	75	59.5
Total	126	100
Frequency Attacked Stroke		
≥ 2 times	12	9.5
1 time	114	90.5
Total	126	100

The table describes the distribution of respondents, most of whom are aged ≥ 60 years (elderly) as many as 61.1% (77 people), male gender reaching 51.6% (65 people), 70.6% (89 people) highly educated, 73% (92 people) unemployed with 56.3% (71 people) having no income. Stroke-related conditions in respondents have the most history of stroke or frequency of stroke (1 time) of 90.5% (114 people).

Distribution of Respondents Based on Stroke Impact and Family Support in Outpatient (Neurology & Rehabilitation Polyclinic) of Jakarta Islamic Hospital Cempaka Putih, (n.126), 2023

Variables	Frequency	Persentage
Impact Stroke (Domain Physique)		
There is Disturbance Physique	64	50.8
No There is Disturbance Physique	62	49.2
Total	126	100
Impact Stroke (Domain Cognitive)		
There is Disturbance Cognitive	67	53.2
No There is Disturbance Cognitive	59	46.8
Total	126	100
Stroke Impact (Emotional Domain)		
There is Disturbance Emotional	64	50.8
No Emotional Disturbance	62	49.2
Total	126	100
Stroke Impact (Communication Domain)		
There is Disturbance Communication	69	54.8
No Communication Disruption	57	45.2
Total	126	100
Impact Stroke (Domain Social)		
There is Disturbance Social	71	56.3
No There is Disturbance Social	55	43.7
Total	126	100
Support Family		
Support Family Good	63	50.0
Support Family Not enough	63	50.0
Total	126	100

The table explains that stroke in respondents is dominated by ischemic stroke type of 59.5% (75 people). The impact of stroke on the physical domain is 50.8% (64 people), disorders in the cognitive domain are 53.2% (67 people), disorders in the emotional domain are 50.8% (64 people), disorders in the communication domain are 54.8% (69 people), disorders in the social domain are 56.3% (71 people). Family support in respondents is equally large between poor family support and good family support.

Distribution of Respondents Based on *Self Care* in Outpatient (Neurology & Rehabilitation Polyclinic) of Jakarta Islamic Hospital Cempaka Putih, (n.126), 2023

Variables	Frequency	Persentage
***Self Care* (Self Care Maintenance)**		
Maintenance Lack of Self	64	50.8
Maintenance Good Self	62	49.2
Total	126	100
***Self Care* (Monitoring) Self Care)**		
Monitoring Lack of Self Care	64	50.8
Good Self Care Monitoring	62	49.2
Total	126	100
Self Care (Management Self Care)		
Management Lack of Self Care	76	60.3
Good Self Care Management	50	39.7
Total	126	100

The table describes *Self Care* in respondents showing that the majority experienced inadequate self-care maintenance of 50.8% (64 people), inadequate self-care monitoring of 50.8% (64 people) and inadequate self-care management of 60.3% (76 people).

Bivariate Results

Distribution of *Self Care* Based on Respondent Characteristics (Age, Gender, Education, Status Economy, Type Stroke, Frequency Stroke) in Outpatient (Neurology & Rehabilitation Polyclinic) at Jakarta Islamic Hospital Cempaka Putih, 2023, (n=126)

Variables	Self Care				Total		p *Value*
	Not enough		Good				
	n	%	n	%	n	%	
Age							
≥ 60 years (Elderly)	9	32.1%	19	67.9%	28	100%	0.054
45 – 59 years (Pre-Elderly)	40	58.8%	28	41.2%	68	100%	
19 – 44 years (Adult)	14	46.7%	16	53.3%	30	100%	
Type Sex							
Man	26	40.6%	38	59.4%	64	100%	0.039
Woman	37	60.7%	24	39.3%	61	100%	
Education							
No School	1	50.0%	1	50.0%	2	100%	0,000
Low Education	29	82.9%	6	17.1%	35	100%	
Education Tall	33	37.1%	56	62.9%	89	100%	
Status Economy							
No Own Income	46	64.8%	25	35.2%	71	100%	0.001
≤ Minimum Wage	5	33.3%	10	66.7%	15	100%	
> Minimum Wage	12	30.0%	28	70.0%	40	100%	
Type Stroke							
Hemorrhagic Stroke	21	41.2%	30	58.8%	51	100%	0.147
Stroke Ischemic	42	56.0%	33	44.0%	75	100%	
Frequency Stroke							
≥ 2 times	9	75.0%	3	25.0%	12	100%	0.129
1 time	54	47.4%	60	52.6%	114	100%	

The table illustrates that the age of 45-59 years (Pre-Elderly) experienced less *Self Care* obtained 58.8% and female gender 60.7%. Respondents with low education (Elementary & Junior High School) experienced less *Self Care* by 82.9% and had no income, namely 64.8%. The results of the statistical test obtained a p *Value* of 0.054 at alpha 5%, so it can be concluded that there is a relationship between age and *Self Care* , while the p *Value* on education is 0.000 which means there is a meaningful relationship between education and *Self Care*. The p *Value* on the economic status variable is 0.001 indicating a relationship between economic status and *Self Care.*

Analysis of the relationship related to stroke conditions in respondents in table 5.2.1 can be explained that most respondents with ischemic stroke experienced less *Self Care by 56.0% and experienced less Self Care* in respondents who experienced stroke frequency ≥ 2 times, namely 75.0%. This shows that less *Self Care* , the percentage is greater in recurrent stroke events compared to respondents who experienced stroke 1 time. However,

from the results of the statistical test, a p *Value of* 0.147 was obtained for the type of stroke variable and a p *Value of* 0.129 for the stroke frequency variable, indicating that there was no significant relationship between the type of stroke and *Self Care* and no significant relationship between stroke frequency and *Self Care*.

Self Care is most common in patients with physical disorders, namely 59.4%, experiencing cognitive disorders 58.2%, emotional disorders 59.4%, communication disorders 58.0% and social disorders 67.6%. Analysis of the relationship in each variable domain of stroke impact shows a variation in the relationship. The results of statistical tests on the physical disorder variable show a p *Value* of 0.050, which means there is a significant relationship between physical disorders and *Self Care.* The p *Value* on cognitive disorders is 0.074, indicating that there is no significant relationship between cognitive disorders and *Self Care,* while the p *Value on* emotional disorders is 0.050, meaning there is a significant relationship between emotional disorders and *Self Care.* The p *Value on* communication disorders is 0.073, indicating there is no relationship between communication disorders and *Self Care* and the p *Value* on social disorders is 0.000, meaning there is a significant relationship between social disorders and *Self Care.*

Self Care occurred in respondents with less family support of 57.1%. This shows that *Self Care* is more or less greater in respondents with less family support compared to good family support, but if we look at the results of the statistical test, the p Value *is* 0.154, which means that there is no significant relationship between family support and *Self Care.*

Distribution of *Self Care* Based on Stroke Impact and Family Support in Take care Road (Poli Nerve & Rehabilitation) in House Jakarta Islamic Hospital Cempaka Putih, Year 2023, (n=126)

Variables	Self Care				Total		P *Value*
	Not enough		Good				
	n	%	n	%	n	%	
Domain Physique							
There is Physical	38	59.4%	26	40.6%	64	100%	0.050
No Disturbance Physique	25	40.3%	37	59.7%	62	100%	
Domain Cognitive							
There is Cognitive Disorders	39	58.2%	28	41.8%	67	100%	0.074
No Cognitive Impairment	24	40.7%	35	59.3%	59	100%	
Emotional Domain							
There is Emotional Disturbance	38	59.4%	26	40.6%	64	100%	0.050
There isn't any Emotional Disturbance	25	40.3%	37	59.7%	62	100%	
Communication Domain							
There is Communication Disorders	40	58.0%	29	42.0%	69	100%	0.073
No Communication Disruption	23	40.4%	34	59.6%	57	100%	
Domain Social							
There is Social Disorder	48	67.6%	23	32.4%	71	100%	0,000
No Social Disturbance	15	27.3%	40	72.7%	55	100%	
Family Support							
Lack of Family Support	36	57.1%	27	42.9%	63	100%	0.154
Family Support Good	27	42.9%	36	57.1%	63	100%	

The table Describes the analysis of the relationship between *self-care* and age and stroke frequency, which is a continuation of the explanation in table. The table shows the number of respondents who experienced stroke frequency ≥ 2 times, as many as 12 people, then explained in more detail in table 5.2.2, it was found that the most respondents who experienced *self-care* were of less than at age ≥ 60 years (elderly) with a percentage of 60.0% (9 people). The results of statistical tests on age with *self-care* showed a p *value of* 0.027, which means there is a relationship between age and *self-care* in the incidence of recurrent stroke frequency.

The frequency of stroke is more specifically explained in table, it was found that the most *self-care* was lacking in the frequency of recurrent strokes in this study, the highest stroke incidence was 3 times with a percentage

of 100.0% (5 people). The results of the statistical test showed a p *value* of 0.091, which means there is no relationship between the frequency of stroke and lack of *self-care* .

Multivariate Results

Bivariate Selection

Results Selection Bivariate Test Regression Variables Independent with *Self Care* in Outpatient (Neurology & Rehabilitation Polyclinic) at Jakarta Islamic Hospital Cempaka Putih, 2023, (n=126)

Independent Variables	P Value	OR	95 % CI
Age	0,000	3,263	1,671 – 6,371
Type Sex	0.020	0.432	0.212 – 0.883
Education	0,000	5,661	2,355 – 13,606
Status Economy	0,000	2,128	1,401 - 3,233
Type Stroke	0.102	0.550	0.268 – 1,130
Frequency Stroke	0.063	3,333	0.858 – 12,953
Domain Physique	0.032	2,163	1,062 - 4,407
Domain Cognitive	0.049	2,031	0.998 - 4,136
Domain Emotional	0.032	2,163	1,062 - 4,407
Domain Communication	0.048	2,039	0.999 - 4,160
Domain Social	0,000	5,565	2,566 - 12,069
Support Family	0.108	1,778	0.878 – 3,600

In table there are 12 variables with p *Value* <0.25, namely age, gender, education, economic status, type of stroke, stroke frequency, impact of stroke (physical domain, cognitive domain, emotional domain, communication domain, social domain), and family support. Thus, all of these variables meet the requirements to enter the initial multivariate modeling.

Multivariate Initial Modeling

Results Analysis Modeling Beginning Multivariate Variables Independent with *Self Care* in Outpatient (Neurology & Rehabilitation Polyclinic) Jakarta Islamic Hospital Cempaka Putih, 2023, (n=126)

Variables Independent	B	Wald	p Value	OR	95 % CI
Age	1,060	7,279	0.007	2,887	1,336 – 6,236
Education	1,285	7,173	0.007	3,614	1,411 – 9,256
Domain Social	1,313	9,241	0.002	3,718	1,594 – 8,670

The table shows the results of the initial multivariate modeling that meets the p Value < 0.05, namely age, education and social domain, so that these variables are then entered into the interaction test.

Interaction Test

Results of the Analysis of the Interaction Test of Social Domain Variables, Last Education with *Self Care* in Take care Road (Poli Nerve & Rehabilitation) House Sick Islam Jakarta Cempaka Putih, Year 2023, (n=126)

Variable	P *Value*
Age * Education	0.759

The table illustrates the results of the interaction test on the age variable with education which has a p *value of* 0.759, which means that there is no significant interaction between the age variable and education in relation to *Self Care.*

Latest Model

Results Analysis Modeling End Multivariate Variables Independent with Self Care in Outpatient (Neurology & Rehabilitation Polyclinic) Jakarta Islamic Hospital Cempaka Putih, 2023, (n=126)

Variables Independent	B	Wald	p Value	OR	95 % CI
Age	1,060	7,279	0.007	2,887	1,336 – 6,236
Education	1,285	7,173	0.007	3,614	1,411 – 9,256
Domain Social	1,313	9,241	0.002	3,718	1,594 – 8,670
Constant	3,413	6,297	0.012	0.033	

The table illustrates the final multivariate modeling results that post-stroke patients who have disorders in the social domain are likely to experience less *self-care* by 3.7 times (95% CI: 1.594 - 8.670) compared to those who have no disorders in the social domain after being controlled by age and last education. Post-stroke patients who are not in school are likely to experience less *self-care* by 3.6 times (95% CI: 1.411- 9.256) compared to those who are educated after being controlled by age and social domain. Stroke patients who are older are likely to experience less *self-* care by 2.8 times (95% CI: 1.336 - 6.236). Compared to younger ages after being controlled by education and social domain.

Discussion

Respondent characteristics (age, gender, employment status, economic status (income), education level, type of stroke, stroke frequency) in post-stroke patients.

The results of the study showed that most of the respondents in this study were aged ≥ 60 years (Elderly) at 61.1% with a total of 77 people. This is in accordance with the data and information center of the Indonesian Ministry of Health (2019), that the proportion of stroke in the population based on the characteristics of age, gender, education and place of residence in Indonesia in 2018 was the most vulnerable age and the most affected by stroke and the highest cases occurred at the age of 65 - 74 year. (10) The results of other studies show that the most stroke patients are in the 60-69 year age group (80.4%). (11) This occurs due to the *aging process* in the cardiovascular system and other body systems. The elderly experience a natural aging process where the condition of the blood vessels is stiff due to plaque, so they are at greater risk of stroke.

Stroke is more common in men than women with the results of this study as many as 51.6% (65 people). This is in accordance with the results of research conducted by Maydinar, et al (2017) showing that stroke occurs most often in men at 61.8% of the total respondents. (12) This because men have a habit of smoking which causes plaque buildup (the formation of plaque due to cigarette smoke which is atherogenic/atheromatous plaque on the walls of the arteries) so that arteriosclerosis occurs and there is a risk of stroke and men also have a fairly high level of stress because they have to be responsible or work hard to support their families, causing hypertension. This condition stimulates the body to release stress hormones including adrenaline, cortisol, and norepinephrine. These hormones cause narrowing of the blood vessels and then trigger blood pressure in the arteries to increase, causing enlargement or weakness in the vessels which is at risk of stroke.

In this study, respondents who experienced stroke and were most often found to have outpatient check-ups with a higher education background (high school or college) of 70.6% (89 people) while the rest had a low education background of 27.8% and the least was no school as much as 1.6%. Education can increase knowledge related to stroke and reduce the delay time to go to the hospital for check-ups when experiencing stroke symptoms. (13) Another study by Wardhani (2020) shows that the level of education can influence a person in carrying out the right stroke treatment by choosing a health service, namely a hospital. (10)

Respondents in this study were mostly unemployed as many as 73.0% (92 people) and had no income as many as 56.3% (71 people). This condition occurs because the respondents in this case post-stroke patients are elderly and have entered retirement, but the rest of the patients have not worked since before having a stroke or have independent businesses (boarding house owners). Other respondents do not work and have their own income because the company where they work terminates the employment contract. The results of Fadhilah and Vetty's (14) show that people who suffer from strokes cannot work which will ultimately affect productivity, this makes other family members affected to help the family economy but also the cost of treating stroke patients increases.

Most of the types of stroke experienced by respondents in this study were ischemic strokes at 59.5% (75 people). In line with Rahayu's research (15) which showed that the most common stroke was ischemic stroke. The results of another study conducted by Martono (16) showed that the most respondents experienced ischemic strokes as many as 100 respondents (89.3%) compared to hemorrhagic strokes only 12 respondents (38.4%).

Ischemic stroke occurs due to blockage by a blood clot known as thrombosis (a blood clot that blocks a blood vessel) or embolism (the rupture of a blood clot in a blood vessel that causes a blockage of the blood vessel. (17)

The frequency of strokes that occur in patients is dominated by 1 stroke attack with a percentage of 90.5% or as many as 114 people and the rest experience recurrent strokes. This is in accordance with research conducted by Nadhifah (18) showing that the incidence of the first stroke was 42 respondents (80.8%).

Characteristics of the impact of stroke (physical, cognitive, emotional, communication and social domains) on post-stroke patients at RSIJ Cempaka Putih

The results of the study showed that patients experiencing the effects of stroke included 50.8% or 64 people with physical disorders, 53.2% or 67 people with cognitive disorders, 50.8% or 64 people with emotional disorders, 54.8% or 69 people with communication disorders and 56.3% or 71 people with social disorders.

Dharma (2018b) stated that the wider the area of the brain that is damaged, the more residual symptoms the patient will experience. The most typical physical symptoms that appear include weakness of the limbs to paralysis, loss of sensation in the face, asymmetrical lips, difficulty speaking or slurred speech (aphasia), difficulty swallowing, decreased consciousness, headache (vertigo), nausea, vomiting and loss of vision on one side or blindness can occur. (17)

Most of the respondents in this study complained of weakness (hemiparesis) on one side of the limbs. Weakness in hand function is felt when performing gripping functions or activities involving hand movements, while patients feel weakness in the lower limbs when moving to one side or walking activities so that patients do it with slow movements. This is in line with research conducted by Dody & Huzaifah (20) which found that 30 out of 36 patients experienced impaired motor function hemiparesis which often occurs in non-hemorrhagic (ischemic) stroke. Hemiparalysis (weakness) and hemiplegia (paralysis) are forms of motor deficits caused by motor neuron disorders with characteristics of loss of *voluntary movement control* (conscious movements), movement disorders, limited muscle tone, and limited reflexes. (21)

Stroke not only causes physical dysfunction, but also cognitive dysfunction. Respondents in this study who experienced cognitive impairment occurred in old age. This occurs because increasing age greatly affects the decline in cognitive function due to brain cell atrophy in accordance with the concept of *normal aging.* (22) Research by Ramadhani and Hutagalung (23) showed that there was a strong relationship between age and decreased cognitive function in post-stroke patients with a p *value of* 0.03 ($p < 0.05$), where cognitive impairment often occurs at the age of 60 years. Changes in cognitive function are also influenced by increasing age and recurrent strokes, resulting in significant cognitive decline. (24) Cognitive impairment that occurred in respondents in this study was difficulty concentrating or thinking quickly. This is in line with research by Laksono et al., in that the most frequently disturbed domains of cognitive function were memory and attention. (25) The ability to solve problems and act effectively begins to decline with age. (26,27)

The communication skills shown by most respondents in this study were able to understand what others were saying, state something correctly and were able to answer questions but the respondents' articulation sounded unclear as usual. One of the communication disorders that often occurs is dysarthria where patients do not have difficulty understanding others or finding the right words but there is muscle weakness in the larynx, face, tongue and lips which causes speech to be unclear. (28) De Cock., et al (29) stated that patients in their study mostly showed incorrect consonant articulation and rough voice quality. The results of another study conducted by Wray et al., (30) obtained that stroke survivors experienced communication difficulties which made them feel less confident and helpless after leaving community services.

Disability to loss of physical function experienced by post-stroke patients causes changes in emotional status. Most respondents in this study showed changes in emotions by complaining of sometimes feeling sad and feeling like a burden to others. Based on the results of research by Widakdo & Aprilia Astuti (31) in the title "Stroke and *Mental Emotional Disorder"* which states that there is a relationship between stroke and the incidence of mental emotional disorders in people over the age of 15 at the Jakarta Islamic Hospital. Robinson & Jorge's research in (4) showed that 30% of stroke patients experienced depression, 27% experienced apathy and

22% experienced general anxiety disorder. This psychological disorder occurs due to negative assessments of oneself as physically helpless, weak, worthless and fear of terrible events that might occur, causing discomfort in post-stroke patients (5)

Stroke also causes social impacts on post-stroke patients. Respondents in this study experienced social impacts including not working, not being able to play a role in the family and helping others due to physical disabilities due to stroke. This social impact was felt by the age distribution of the respondents in the study, both elderly, pre-elderly and even adults. Elderly respondents experienced a condition of not working because they had entered retirement, while the rest did not work or had independent businesses since before having a stroke or even lost their jobs because the company did not want to support employees with physical disabilities. There were respondents in this study who were still of productive age but were dismissed from their workplace, where the role as head of the family could not be carried out properly. The results of the study by Silva et., Al (32) showed that there was a moderate decrease in participation after a stroke and only the social role domain was severely affected.

Characteristics of Family Support for Post-Stroke Patients at RSIJ Cempaka Putih

The results of this study indicate that the percentage of good and poor family support is the same, namely 50% (63 people). Good family support in respondents mostly includes emotional support (the family provides attention and empathy to the patient), instrumental support (the family facilitates the provision of goods or services), informational support (the family provides information) and assessment support (the family involves information in the form of affirmation or feedback).

In this case, the lack of family support includes emotional and informational support. One of the emotional supports in this case is not being accompanied by family during outpatient visits because the patient's condition is considered to have improved and is independent, but there are respondents who are abandoned by their families, namely their partners and children so that patients are not accompanied by their families. This is contrary to the results of research by Kruithof et al., (33) which showed that family support has a positive relationship with the quality of life of stroke patients. The presence of family support can trigger patients to be more enthusiastic in practicing and have a strong desire to recover by doing activities routinely. In addition, support from the family can help reduce problems in post-stroke patients such as despair, anxiety, depression and emotional changes that usually occur suddenly. The success of healing and recovery of post-stroke patients will be smaller if there is no support from the family. (34)

Characteristics of *Self Care* in Post-Stroke Patients at RSIJ Cempaka Putih

The results of the study showed that Self-care Maintenance was lacking by 50.8% or 64 people. Self-care maintenance refers to behaviors carried out by post-stroke patients to improve well-being, maintain health or ensure physical and emotional stability. (35) This is in accordance with the results of a study conducted by Agustiyaningsih (36) showing that the level of physical activity of stroke patients is included in the light category, meaning that most patients never do physical activities outside the home (including around the yard), do not do heavy - moderate activities such as walking along the walls of the house, then stroke patients have also stopped working after experiencing a stroke so that there is no physical activity carried out at work, physical activities for home maintenance such as caring for plants or cleaning the yard have never been done by stroke patients because their families forbid them.

The results of this study found that self-care monitoring was lacking by 50.8% or 64 people. Self-care monitoring includes the limitations of the routine body monitoring process, conducting supervision or symptoms that appear in the body that are directly felt by the patient. (35) The results of this study indicate that self-care monitoring is

lacking, marked by physical changes that occur in post-stroke patients.

Self-care management in this study was obtained in the poor category, namely with a percentage of 60.3% or 76 people. Self-care management includes an evaluation carried out by patients of changes in various physical and emotional signs and symptoms to determine whether action is needed in response. (35) Most respondents in this study showed variations in taking attitudes when feeling symptoms or changes that were felt, including rarely changing the food/drink consumed to reduce symptoms and taking medication to reduce/eliminate symptoms and telling health care providers about the symptoms felt at the next visit. This is in line with research conducted by Juniarti et al, (2024) which found that patient *self-care* management was in the poor category, this was indicated by patients not being compliant in taking medication and poor nutritional management (not paying attention to low fat and salt) so that they were at risk of stroke recurrence.

Relationship between Respondent Characteristics (Age, gender, economic status (income), education level, type of stroke, stroke frequency) **with *Self Care*** in post-stroke patients at RSIJ Cempaka Putih . The results of the analysis of the relationship between respondent characteristics and *self-* care include;

The relationship between age and self care

The results of this study showed that the age group that most experienced less *self-care* was 45-59 years old or 58.8% pre-elderly with a p value of 0.054, meaning that there is a relationship between age and *self-care.* Research conducted by Wiyata (38) showed that the age group that was most affected by ischemic stroke was 45-59 years old with 39 patients (48.75%), while the age of ≥ 60 years was 38 patients (47.5%) and the age of 18-44 years was 3 patients (3.37%). The results of this study are in line with research conducted by Setyawan & Puri in which it was found that age has a significant relationship with *self-care* , this is because in old age there are degenerative problems due to the aging process, so that it will affect this elderly group to have a feeling that life will end so that they tend not to want to do self-care or visit health services.

The relationship between gender and self care

This study shows that there is a relationship between gender and *self-care* where women experience less *self-care* at most 37 people (60.7%) with a p value of 0.039 <alpha 0.05. The results of a study conducted by Irie et al., (2015) showed that women with ischemic stroke have a higher risk of experiencing poor functionality when leaving the hospital, this is influenced by greater neurological disorders when admitted to the hospital compared to men. (39) This is reinforced by Tomita's study (2015) which obtained functional results when leaving the hospital assessed by mRS (*Modified Rankin Scale*) showing a score of 3 or higher where this condition is associated with the occurrence of severe stroke dominated by atrial fibrillation which is at higher risk of occurring in women than men. (40)

Atrial fibrillation is a factor that causes ischemic stroke through the formation of emboli that block along the blood vessels to the brain, where blood flow to the brain is supplied by two internal carotid arteries and two vertebral arteries, both of which are branches of the aortic arch of the heart. (41) Risk factors that can increase the incidence of atrial fibrillation with ischemic stroke include unmodifiable factors (age, gender and genetics) and modifiable factors (obesity, physical activity, smoking, alcohol consumption habits, etc.). (42). This results in women experiencing a greater risk of decreased function and poorer motor recovery after stroke. (43) The results of Ignatius's (2017) study found that ischemic stroke in women had worse clinical outcomes, in this case the clinical outcome in question was motor ability. (44). This is confirmed by the results of research by Espuela et al., (2020) which shows that women show worse functionalities influenced by more severe strokes and older age. (45) This condition will describe how women's ability to carry out self-care after a stroke.

The relationship between education and self care

The results of the study showed that low education was the most at 82.9% or 29 people with a p value of 0.000. The analysis test found that there was a relationship between education and *self-care.* This is in accordance with the results of research conducted by Emellia et al in (2023) that there is a relationship between education and *self-efficacy* (46). *Self-Efficacy* is a person's belief in their ability to achieve certain goals in this case *self-care* after a stroke.

The level of education will greatly affect the patient's ability to understand their health condition, this is proven by the fact that patients who have a low level of education will have difficulty in recognizing health and understanding disease guidelines compared to patients with a high level of education. Therefore, a higher level of education is expected to facilitate someone to be able to receive information well and influence them to behave well in this case the individual will seek the best therapy and treatment according to the conditions they are experiencing.

The relationship between economic status and self care

This study obtained data that most respondents did not have an income of 64.8% or 46 people with a p value of 0.001. This analysis test shows that there is a relationship between economic status (income) and *self-care.* This is in accordance with the results of research conducted by Kumalasari et al, in (2023) it was found that there was a relationship between income and self-care behavior. (47) Stroke has an economic burden on patients.

The availability of resources owned by patients can support self-care and help the recovery process after stroke. (9) In addition, income also plays a role in maintaining patient compliance in carrying out *self-care.* (48) This will certainly illustrate how patients comply with showing active involvement in carrying out *self-care*, especially self-care management, namely patients carrying out routine checks to health services. Respondents in this study were predominantly unemployed and had no income from work after having a stroke, this is because most of the respondents had entered retirement and some were also laid off from their jobs due to a decline in physical condition after a stroke.

The relationship between stroke types and self care

This study obtained data that most ischemic strokes experienced less *self-care* compared to hemorrhagic strokes with a percentage of 56.0% or as many as 42 people. The results of the relationship analysis obtained a *p value of* 0.147> alpha 0.05, which means there is no relationship between the type of stroke and *self-care.* The results of this study indicate that ischemic stroke patients experience *self-care* in the less category more often than hemorrhagic stroke patients. Fadlulloh (2014) showed that dependence in meeting the needs of daily activities occurred in hemorrhagic stroke patients with a mild category of 32.3%. (49)

The results of this study differ from previous studies where hemorrhagic stroke causes more serious disabilities than ischemic stroke in elderly people with disabilities. (9) Hemorrhagic stroke has a greater severity than non-hemorrhagic stroke, this is because the brain experiences bleeding which results in cell death and permanent damage in a faster time.

Ischemic stroke or known as non-hemorrhagic stroke is characterized by a blockage or obstruction in the cerebral artery which causes oxygen in the cerebral artery to be blocked but neurons in the brain are still active if blood flow can be re-established so that the prognosis of ischemic stroke is better compared to hemorrhagic stroke because the type and extent of stroke lesions and the patient's level of consciousness are in the mild category. (50) This condition causes neurological deficits including motor and sensory deficits which will determine the length of recovery and also affect the behavior of daily activities in this case how patients are able to show good *self-care* during the recovery period after stroke. This is reinforced by the theory presented by Ikawati (2014) stating that the prognosis of hemorrhagic stroke is better compared to ischemic stroke in terms of recovery. (50)

Relationship between stroke frequency and self care

This study found that the most stroke frequency ≥ 2 times caused less *self-care* with a percentage of 75.0% with a p *value of* 0.129> alpha 0.05. The results of the statistical test showed that there was no relationship between stroke frequency and *self-care.* This is not in accordance with Hankey's (2014) study which stated that recurrent stroke patients were more disabled and severe than those with the first stroke. (51) Recurrent strokes cause more serious neurological cell necrosis than the first stroke so that neurological deficit recovery is worse than before and has an impact on poor functional outcomes. (9) However, in this study, the frequency of recurrent strokes did not directly affect *self-care* in the majority of elderly respondents. The researcher assumes that this condition occurs because of factors within the respondents that influence the willingness of elderly patients to do *self-care.* The results of this study are in accordance with Setyawan & Puri in 2013, it was found that age has a significant relationship with *self-care* , this is because in the elderly there are degenerative problems due to the aging process, so that it will affect this elderly group to have a feeling that life will end so that they tend not to want to do self-care or visit health services. This is in line with Malahati's research (2023) which states that there is a relationship between the aging process and inadequate self-acceptance in the elderly. (52) The process of inadequate self-acceptance in the elderly is exacerbated by a lack of self-confidence in their ability to deal with problems and feel worthless and useless to others, as a result patients will have difficulty adjusting to their changing conditions (53)

Relationship between Stroke Impact (Physical, Cognitive, Emotional, Communication, Social Domains) and *Self Care*

The results of the research related to the analysis of the relationship between the impact of stroke and self-care are as follows;

The relationship between physical domain and self care

The results of this study obtained the most physical disorders causing less *self-care* by 59.4% or 38 people with a p value of 0.050 meaning that there is a relationship between the physical domain and *self-care* . The results of this study are in line with Törnbom et al., (2017) that physical problems are the domain most complained about by stroke patients and affect the physical activity of post-stroke patients. (54) This was confirmed by Guidetti (2014) through the results of research conducted that the most frequently affected domain is the physical domain, especially hand strength and function using the *Stroke Impact Scale questionnaire*. (55) In this study, it was found that patients experienced physical disorders, namely a decrease in the strength of hand and leg function, walking, carrying out daily activities such as difficulty eating using cutlery and others. This affects how patients carry out *self-care* with dependence on others. Robby and Selpiyati's (2019) study obtained the results of the functional status of stroke patients, the majority of whom required a total of 50.0% assistance in daily activities. (56)

The relationship between cognitive domain and self care

The results of this study found that most cognitive disorders caused less self-care by 58.2% or 39 people with a p value of 0.074. The results of the analysis in the cognitive domain did not find any relationship with *self-care.* This is in line with the results of Sandrawati's (2021) study which found that there was no significant relationship between cognitive and independence of post-stroke patients. (57) In this study, it was found that patients showed limitations in concentrating or thinking quickly, but patients still showed *self-care behavior.*

The relationship between emotional domain and self care

The results of this study found that most emotional disorders caused less self-care by 59.4% or 38 people with a p *value of* 0.050, which means there is a relationship between the emotional domain and *self-*

care. This psychological disorder occurs due to negative assessments of oneself as physically helpless, weak, worthless and fear of terrible events that might occur, causing discomfort in post-stroke patients. (5). Stroke causes residual symptoms such as physical disabilities that limit stroke patients from being able to carry out daily activity needs independently. The interaction between researchers and respondents found that there were complaints from patients feeling sad and being a burden on others. This affects the patient's motivation to achieve optimal *self-care behavior*.

The relationship between communication domain and self care

The results of this study found that the most communication disorders caused less self-care by 58.0% or 40 people with a p value of 0.073 meaning there was no relationship between the communication domain and *self-care*. In this study, it was found that the communication disorders that occurred in patients were dysarthria or unclear pronunciation, but the results of the relationship analysis did not show a direct relationship between communication and *self-care* in patients.

The relationship between social domains and self care

The results of this study found that the most social disorders were 67.6% or 48 people with a p value of 0.000, meaning that there is a relationship between the social domain and *self-care*. This is in accordance with the results of the study by Araújo et al., (2019) showing that the results of patient self-assessment (*Self Rated Health*) in stroke patients in this case a poor social domain will affect daily life activities after stroke. (58) In this study, data was obtained that patients only interacted with family and rarely interacted with neighbors or a larger community, this was because patients felt physically disabled or helpless, for example decreased motor skills, difficulty speaking or speaking unclearly, etc. The interaction of patients with their families is also sometimes limited because family members are busy working or experiencing fatigue in caring for patients, there are even patients who are abandoned by their families so that patients only spend time alone with the impact of the stroke they experience. The impact of the social domain is directly related to the motivation of patients to carry out self-care after a stroke.

Relationship between Family Support and *Self Care*

The results of this study indicate that the most lack of family support causes lack of self-care by 57.1% or 36 people with a p value of 0.154, which means that there is no relationship between family support and *self-care*. The results of this study are different from the results of previous studies conducted by Novera (2022) which found a relationship between family support and *self-care* in post-stroke patients, where post-stroke patients who have less family support have the ability to care for themselves (*self-care*) with some assistance, sufficient family support has the ability to care for themselves (*self-care*) with maximum and good family support has self-care (*self-care)* has self-care independently. (59) In this study, there were patients who were not accompanied by their families but the patients still carried out self-care, *namely* by checking with health services.

The most dominant factor influencing *self-care* in post-stroke patients at RSIJ Cempaka Putih

The analysis results obtained Odd Ratio (OR) from the social domain is 3.7, meaning that patients who experience impacts on the social domain will produce less *self-care* by 4 times higher than patients who do not experience impacts on the social domain after controlling for age and education variables. The analysis results obtained Odd Ratio (OR) from education is 3.6, meaning that patients who have low education will produce less *self-care* by 4 times higher than patients who have higher education after controlling for age and social domain variables. The analysis results obtained Odd Ratio (OR) from age is 2.8, meaning that elderly patients will produce less *self-care* by 3 times higher than adult patients after controlling for social domain and education variables. It can be concluded that the most dominant

factors influencing *self-care* include the social domain followed by education, and age.

CONCLUSION

The results of the bivariate analysis showed that there was a relationship between independent variables including age, gender, education, economic status, physical domain, emotional domain, social domain with *self-care* in post-stroke patients.

The results of the multivariate analysis showed that the factors most related to *self-care* in post-stroke patients in this study were the social domain, education and age.

This research can increase knowledge in the field of sustainable nursing science related to *Self Care* in post-stroke patients and become a source of learning resources in providing rehabilitative nursing care to post-stroke patients.

This research can be a self-reflection for families in caring for family members who experience the impact of stroke and provide *support* for other post-stroke patients to be enthusiastic and productive in living life with the impact of the stroke they experienced.

This study is a reference in providing rehabilitative nursing care for patients and families as a form of excellent service and holistic nursing services, so that researchers provide suggestions for health workers; to be able to conduct holistic assessments (bio, psycho, social and spiritual) including patient *support sources* in carrying out *self-care*, conducting therapeutic communication and providing group innovation activities that can be carried out at the stroke *club.*

The researcher is aware of the limitations in this study, so it is recommended for further researchers to develop the research design, for example, to further examine the application of *self-care* on the quality of life in post-stroke patients.

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