

Perception Towards Illness and Health Care System Among Stroke Patients in Yogyakarta

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Abstract

Introduction: Stroke remains a health problem in Indonesia. The objective of this study was to determine the illness perception and healthcare system of stroke patients at the Special Region of Yogyakarta Hospital.

Method: This descriptive observational research applied a cross-sectional approach. The research site was at the Department of Neurology of the hospital from January to February 2023. The research subjects were the outpatients under the guarantee of national health insurance, JKN. This research applied face-to-face interviews with the patients based on the interview guidelines. The researchers took the sample with convenience sampling.

Result: The results found total patients of 105, 69 male and 36 female patients. The average age of the patient was 63.8 years old. The highest proportion within the age category was observable in patients aged older than 60 years old, 68.57%. Most patients suffered from strokes for approximately 4.3 years. The percentage of patients with an excellent perception of the illness was 64.76%. The percentage of patients with an excellent perception of the healthcare system was 50.48%. The chi-square test showed $p\text{ value} > 0,05$ for all variables.

Conclusion: The illness perception and health care system were excellent. There was no correlation between gender, age, duration of stroke, education level, and family income on the illness perception and health care system of the Special Region of Yogyakarta Hospital. The health professional was needed to provide education about strokes such as risk factors, signs, symptoms, and post-stroke treatment so that patients can improve an excellent illness perception. Health service providers to be able to improve the quality of service to increase an excellent healthcare system perception.

Keywords: *health care system perception, illness perception, stroke*

Introduction

Stroke remains a health problem in Indonesia. The basic health research data (Riskesdas) of Indonesia in 2007, 2013, and 2018, showed the increased prevalence of stroke within the last 12 years¹⁻³. This matter happens due to the illiteracy of the community about the signs and symptoms of stroke so no immediate care implementation exists⁴. The high prevalence of stroke becomes a concern because this matter influences the social situation due to disability⁵. The World Health Organization, WHO, points out that the influential cause of disability and mortality in the world was stroke⁶.

Stroke could influence the psychological condition of the patients⁷. This matter may occur because the patients and families are lacking basic stroke knowledge, such as the risk factors, symptoms, and stroke management⁸. Various illness perceptions influence the psychological condition of post-stroke patients. Previous studies showed that various illness perceptions could improve quality of life and prevent depression due to stroke⁹. Patients with poor

perceptions have a higher risk of suffering from depression due to disability¹⁰. The illness perceptions are associated with individual understanding of the diseases, such as the causes, symptoms, durations, and impacts on the families and patients; and the efforts to manage the disease^{11,12}.

Various perceptions also influence the efforts of finding medicines within a health service system. The health service system perception includes the qualities of care, received facility, information, health officer, accessibility, and cost¹³. Excellent perceptions of the health system could improve patients' satisfaction and become the cause of certain health facility preferences¹⁴. On the other hand, negative perceptions of health service could occur due to complicated administrative procedures, poor communication among health workers, and long queue¹⁵.

Besides that, the background of this research included the research limitation. Research on perceptions about stroke in Indonesia was limited. The same matter was also observable in research about

health service systems. Therefore, research about health perception and the health service system of stroke people are important. This research revealed the perceptions of illness, health service system, and influential factors associated with illness perception and health service system of stroke patients at Special Region Yogyakarta's Regional Hospital.

Materials and Methods

Research Design

This observational descriptive research applied a cross-sectional approach. The research site was the neurological care of the Special Region of Yogyakarta Hospital, from January to February 2023.

Research Subjects

The subjects were the outpatients under the National Health Security of Indonesia at the Special Region of Yogyakarta Regional Hospital from January to February 2023. The applied inclusion criteria were: being diagnosed with suffering stroke for three months, ≥ 18 years old, being capable to communicate, understand, and answer the questionnaire, and being willing to participate in the research based on informed consent. The exclusion criterion was - pregnant women.

Research Variables

The variables were independent and dependent. The independent variables were age, sex type, and period of suffering stroke. The dependent variables were the illness and health service system perceptions.

The Research Instrument

This research instrument included face-to-face interviews with the respondents for approximately 15 minutes and questionnaire guidelines. The researchers interviewed the respondents while visiting the outpatient care of the hospital. The questionnaire on illness perception consisted of eleven questions. The questions were favorable, starting from number 1 until 10 while the unfavorable was only on number 11. On the other hand, the questionnaire of the health service perception system consisted of 10 questions. The unfavorable questions were from number 1 until 4 while the favorable questions were from number 5 until 10. The researchers used a Likert scale with four alternative answers¹⁶.

Sample Size

The researchers determined the sample by calculating with the Cochran formula. The obtained samples were 96 respondents¹⁶. The researchers anticipated respondents without sharing their complete answers by adding a 10% sample size. Thus,

the minimum sample size consisted of 105 respondents. The researchers chose the sample with convenience sampling. The interviewed respondents were those meeting the criteria.

The Data Analysis

The applied data were primary and secondary data. The primary data were from face-to-face interviews with the respondents. The data included patient characteristics, illness perception, and health service system perception. For each question item, the researchers grouped the results into two categories: excellent or average. The researchers calculated the cut-off point with the Kolmogorov-Smirnov normality test.

If the data were not normally distributed, the researchers would use the median as the cut-off point. However, if the data were distributed normally, the cut-off point would be the mean. The correlation between the patient characteristics, the illness perception, and the health service system applied the Chi-square test. The obtained significant value, $p\text{-value} < 0.05$, the result denies H_0 , indicating the influence among the variable¹⁷.

Result and Discussion

The researchers obtained the results from 111 respondents. The respondents meeting the inclusion criteria were 105 respondents. 103 respondents suffered from ischemic stroke while the others suffered from hemorrhagic stroke. In this research, 2 respondents declined to join the interview and 4 respondents suffered from stroke for less than 3 months. Thus, they were not taken as the sample.

In this research, the researchers found 103 respondents, 98.1% of patients, suffering from ischemic stroke. A high prevalence of ischemic stroke was also observable in previous studies. Research at PKU Yogyakarta and Panembahan Senopati Regional Hospital reported high prevalence of ischemic stroke patients than hemorrhagic stroke patients^{18,19}. Research on Chili found the same finding due to the cardiovascular risk of the investigated population²⁰. The data of Heart Disease and Stroke Statistic 2022 taken from AHA found a high prevalence of ischemic stroke than hemorrhagic stroke, 87%²¹.

The Patients' Characteristics

The patient characteristics included age, sex type, stroke period, educational level, and family income. Table 1 shows the male sex type proportion, 65.71% higher than the woman proportion, 34.29%. The Basic Health Research Data in 2018 also found a high prevalence of stroke in Indonesia was higher in men than women¹. The guideline of AHA/ASA 2011

mentioned the influential factor of stroke was sex type. In this case, male individuals are vulnerable to stroke²². The current results were in line with the results at Dr. Drajat Prawira Negara Serang Regional Hospital, Blambangan Banyu Wangi Regional Hospital, Dr. Sardjito Yogyakarta Regional Hospital, Dr. Soekardjo Tasikmalaya Regional Hospital, Bethesda Yogyakarta Hospital. The results showed males were more vulnerable than females²³⁻²⁷.

Sex types and age highly influenced the risk of suffering from stroke. Males had high stroke vulnerability rate than women because they might highly suffer hypertension than women of the same age²⁸. However, the increased stroke prevalence in women may occur due to menopause²⁹.

In this research, most stroke patients were aged older than 63.8 years old. The highest proportion was observable in 65-year-old individuals, 50.48%. The results showed that the respondents with the category younger than 65 years old and ≥ 65 years old were similar. Research by the American Heart Association reported most stroke patients were aged 65.6 years old³⁰. On the other hand, the research in Spain showed that the stroke prevalence proportion was mostly observable in individuals aged older than 65 years old³¹. The Basic Health Research Data (2018) showed the increased stroke prevalence in individuals aged older than 75 years old (50.2%) and individuals aged between 65 and 74 years old (45.3%)¹. The results at Prof. Dr. R.D. Kandou Manado Regional Hospital reported most stroke patients were aged between 60 and 79 years old (44.6%)³².

One of the dominant risks of stroke patients in Indonesia is age³³. A study in the United States mentions that the risk of stroke got doubled for individuals older than 55 years old²². The increased stroke prevalence in the elderly population was mostly due to other risks, such as hypertension, hypercholesterolemia, and heart disease²⁹. The duration of the stroke period was counted since the first onset. Based on the duration, the researchers found 57 respondents (54.3%) suffered from stroke for less than three years. The average duration was 4.3 years while 10.5% of respondents suffered from strokes for more than 10 years. The current research results at Margono Soekardjo Purwokerto Regional Hospital found most respondents, 67.1%, suffered from a stroke from 1 to 5 years. The researchers found only 2.7% of respondents suffered from a stroke for more than 10 years³⁴. The duration of the stroke made the patients neglect their medication. Some respondents explained they felt better and did not require stroke medication anymore. This behavior led to repeated onset.

Therefore, a post-stroke medication strategy was important to decrease morbidity and improve quality of life by preventing repeated onset³⁵.

Table 1. The Characteristics of Stroke Patients

Characteristics	N (=105)	%
Sex types (n = 105)		
Male	69	65.7
Female	36	34.3
Age (n = 105)		
<65	52	49.52
≥ 65	53	50.48
Stroke duration (n = 105)		
<3 years old	57	54.3
≥ 3 years old	48	45.7
Population density (n = 105)		
Low	20	19.05
Moderate	57	54.29
High	28	26.67
Family income (n = 68)		
<RMW*	27	39.71
>RMW*	41	60.29

*RMW=Region Minimum Wage

Based on education, the researchers found 57 respondents, 54.29%, had moderate education. The results were in line with the previous studies. 60.1% of respondents had moderate education background levels³⁶. Other previews studies mentioned most patients of the disease were participants with SHS educational backgrounds³⁷⁻³⁹. Educational level was important to gain knowledge. Current research found the lowest educational background of the respondents was having no education while the highest educational background was a Master's degree. Jessyca (2021) found a correlation between educational level and knowledge of stroke disease³⁸. Other studies also mentioned the correlation between educational level and the rehabilitation obedience of stroke patients⁴⁰.

Based on the family incomes, the researchers found most respondents, 60.29%, had equal or higher incomes than the minimum regional wage. The result was not in line with Baritoh (2016). The author found 56.6% of respondents suffering from the disease had lower incomes than the minimum regional wage. The respondents with adequate family income could support their daily necessities, including medication. Thus, they could improve their quality of life⁴¹. Family income was an influential factor in stroke care. The financial source became the problem of providing health care for stroke patients, especially those without national health insurance security⁴². Some respondents explained they did not have personal incomes but they received supportive incomes from other families, such as children.

The Illness Perception

The researchers found the illness perception was based on the questionnaire, consisting of eleven questions. Table 2 shows the answers of the respondent's perceptions. The table shows more than 50% of respondents agree with the notion that stroke occurs due to incorrect dietary habits, such as consuming high-fat or cholesterol meals and salty meals or salts. Most respondents agree with the notion that stroke occurs due to consuming sweets with high

intensity, aging process, stress, and life difficulty. The results showed the respondents believed that stroke occurred due to unhealthy lifestyles, stress, and life pressure (Groeneveld et al., 2019; O'Connell et al., 2020). Ghani (2015) explains the dominant factor of stroke in Indonesia was the aging factor. Stroke risk increases along the ages. Individuals aged older than ≥ 55 years old had 10.23 higher chances than individuals aged between 15 and 44 years old³³.

Table 2. The answer distribution of illness perceptions

Questions	Options (%)			
	Extremely Agree	Agree	Disagree	Extremely Disagree
1. The family's historical record of suffering stroke was a factor of stroke.	12.38	22.86	63.81	0.95
2. Life stress and difficulty make individuals suffering from stroke	28.57	38.10	33.33	0.00
3. A stroke occurs in an individual who ages	14.29	47.62	36.19	1.90
4. Smoking habit influences stroke onset	10.48	25.71	54.29	9.52
5. Being overweight leads to stroke.	10.48	28.57	58.10	2.86
6. Less physical activities lead to stroke.	6.7	40.95	47.62	4.76
7. Consuming high-fat or high-cholesterol meals lead frequently leads to stroke.	29.52	55.24	15.24	0.00
8. Consuming salty meals may lead to stroke.	22.86	58.10	19.05	0.00
9. Consuming sweet meals or sugars exaggeratedly may lead to stroke.	22.86	46.67	29.52	0.95
10. Stroke requires routine and long-term medication.	42.86	56.19	0.95	0.00
11. Supranatural power could recover stroke.	0.95	2.86	18.10	78.10

More than half of the respondents did not agree with the notion that stroke occurred due to family records, smoking habits, and being overweight. Most respondents disagreed with the notion that stroke occurred due to a lack of physical activity. Current results were not in line with Jood (2015). The author found that family could be the risk of suffering from stroke, especially the stroke case before 70 years old⁴⁴. Some previous studies found a correlation between smoking and stroke incidents. Daily smoking had 2 or 4 high chances to suffer from strokes than those without daily smoking^{45,46}. The meta-analysis found that smoking could increase stroke risks⁴⁷. Previous research found a correlation between overweight and ischemic stroke risk⁴⁸. Chen, cited in AHA (2006), found that obesity contributed to increased ischemic stroke risks, especially abdominal obesity with metabolic syndrome⁴⁹.

Most respondents admitted that stroke required routine and long-term medication. The results were similar to the findings of Groneveld (2018). The author found that respondents suffering from a stroke in the Netherlands argued stroke medication required long-term management and greatly influenced their lives⁹. One of the impacts of routine and long-term stroke medications was influencing the psychological condition of the families or the companions of the

patients. However, the psychological conditions of the companions would get better after two years of helping the patients. The conditions would also get better along with the quality of life improvement of the patients⁵⁰. Therefore, the self-motivation of the patients, family support, and intimate individual supports were important to improve the quality of life of stroke patients.

More than half of the respondents disagreed with the notion that supernatural power could cure stroke. They argued that stroke recovery required inner belief and motivation instead of supernatural powers. Therefore, most respondents visited healthcare services to find recovery. Some respondents believed in religion rather than supernatural power. A literature review by Utami (2022) found that religious intervention positively influenced the psychological conditions of stroke patients, such as improving motoric capability and quality of life; and decreasing anxiety or depression⁵¹.

The researchers analyzed the obtained scores and grouped them into two categories: excellent and average perceptions based on the cut-off point of the Kolmogorov-Smirnov normality test. The obtained normality test was a p-value 0.00 lower than 0.05, indicating abnormal data distribution. The result indicated the data were not normally distributed so

that the cut-off point was based on the media, 31. The researchers deemed the perception of the diseases was excellent if the total score was higher than the median. Table 4 shows the assessment data and score categories.

Sixty-eight respondents, 64.76%, had an excellent category while 37 respondents (35.24%) had an average category. This matter showed most respondents had an excellent understanding of stroke. The results were in line with the studies in Thailand and China. The studies found the respondents had excellent stroke illness perception to improve quality of life awareness and reported stroke onset prevention^{52,53}.

Excellent illness perception could improve the therapy's success and prevent complications⁹. Excellent illness perception could improve self-confidence toward the disease medication and recovery. On the other hand, a lack of perception could worsen the disease. Knowledge about stroke risk factors could relieve stroke onset that may occur without symptoms. A review article by Utama & Nainggolan (2022) found a lack of awareness about stroke causal factors and excellent living behavior in the community triggered the repeated onset⁵⁴.

The Health Service System Perception

The health service system perception was based on the questionnaire answers about the illness

perception, consisting of 10 questions. Table 3 shows the answers to the respondents' perceptions of the health service system. More than 50% of respondents disagreed that they had difficulties going to hospitals due to having no companions. Most respondents explained that the family members always accompanied the patients at the hospital. However, some respondents went to the hospitals without any companions because their conditions were stable. Support from relatives could improve stroke patients' health⁵².

Most respondents disagreed that they had difficulties going to hospitals due to no transportation. The observation results found that the respondents went to visit the health care centers with their private vehicles, public transportation, or on foot. Some respondents did not have difficulties getting transportation because many online transportations were available. Besides that, the respondents were habituated to using public transportation. Some respondents were delivered to the hospital by ambulance, village ambulance, or free organizational ambulance. Most respondents found the transportation availability helpful because they could find the transportation immediately. Therefore, transportation did not hinder the patients to visit the hospital.

Table 3. The answer distributions about health service system perception

Questions	Options (%)			
	Extremely Agree	Agree	Disagree	Extremely Disagree
1. I had difficulties going to the hospital because no companions to take me there.	0.00	9.52	61.90	28.57
2. I had difficulties going to the hospital due to no transportation or vehicles.	0.00	7.62	65.71	26.67
3. I had difficulties going to the hospital because of the far distance.	0.00	7.62	69.52	22.86
4. I found the difficulties to go to a hospital because of the long queue and complicated procedures.	0.00	13.33	70.48	16.19
5. I regularly visited the hospital to check my stroke condition every month.	66.67	24.76	8.57	0.00
6. I believed in the stroke medication given by the hospital.	34.29	63.81	1.90	0.00
7. The health service at the hospital provided excellent services.	43.81	54.29	1.90	0.00
8. I believed in the health workers at the hospital.	35.24	62.86	1.90	0.00
9. The health workers at the hospital provided complete information about stroke.	29.52	64.76	5.71	0.00
10. The health workers at the hospital provided complete information about the medicine.	28.57	68.57	2.86	0.00

More than half respondents did not agree with the notion, of the difficulty to go to hospital due to the far distance. In this case, most patients who visited the hospital were the surrounding people. The closest distance was only 0.1 km while the farthest distance was 30 km. The average distance coverage was 4.8 km.

The respondents living at a far distance had some relatives around the hospital. In another case, the patients were delivered from other hospitals. The result was in line with the previous study. Most stroke patients in Banda Aceh had to cover 1 to 5 km when they visited Dr. Zainoel Abidin Regional Hospital ³⁶.

The availability of transportation and distance to the health facility determined the accessibility of the patients to reach the health facility^{36,55}. The patients could easily visit the health facility when the distance was closer. Thus, they had frequent visits⁵⁶.

Most respondents disagreed that they had difficulties going to hospitals due to complicated procedures. The findings showed that the respondents understood the referral system to get treatment at the hospital, the advanced-referral level. Most respondents registered themselves with the online system and only some of them did offline registration. The average of patients in neurological care at the Special Region of Yogyakarta Regional Hospital was lower than other care units. The average is 30 patients per day. Therefore, most patients did not find the service complicated because they did not have to queue.

Most respondents agreed with the notion of being routine to have medication. A routine visit to receive stroke medication was important for some reasons, such as trust in the stroke medication by the hospital (63.81), the excellent service (54.29), having

trust in the health care providers and the hospital (62.86), receiving complete information about stroke (64.76), and receiving information about the medicine (68.57). The results were in line with the previous studies about the influence of healthcare facilities on re-visitation of the patients⁵⁷. Other studies found that excellent healthcare quality would increase the community's interest to use the health service and to visit regularly. These actions improved health levels⁵⁸. Supartiningsih (2017) reported that respondents visiting hospitals due to the excellent service, trusted health workers' attitudes, accessibility and clarity of information, and attention to the patients could improve patient satisfaction⁵⁹.

From the total score, the steps became the illness perception, the assessment, and the score category. The obtained normality test was a p-value 0.00 lower than 0.05, indicating abnormal data distribution. The result indicated the data were not normally distributed so that the cut-off point was based on the media, 32. Table 4 shows the assessment data and score categories.

Table 4. The assessment and the category of illness and health service system perceptions

Variable	Minimum Score	Maximum Score	Median	Categories			
				Excellent	%	Under average	%
Disease perception	25	42	31	68	64.76	37	35.24
The health service system perception	23	40	32	53	50.48	52	49.52

Fifty-three respondents, 50.48%, have an excellent category; 52 respondents (49.52%) with under average category. The results showed that the respondents with excellent and under-average categories were almost equal. Respondents with excellent categories perceived that the services and affordability were excellent. The results were in line with Riawati (2022). The author found that 82.5% of respondents at Ar-Royyan Indralaya Regional Hospital perceived the health care as excellent⁶⁰.

Excellent perceptions of the health system became the determinant factor of health facility selection. The previous studies found the negative factor of health service systems, such as the negative attitude of the health workers, lack of medicine availability, lack of service and communication, long queue, long waiting list, far distance, and lack of knowledge and information about the disease^{61,62}. Other research reported that the health service system perception at Kotamobagu Regional Hospital was not excellent because the health workers' responses were not excellent, lack of professional workers, poor

attitudes of the health workers toward the patients, and the lack of supportive facilities⁶³. A systematic review by Kiwanuka (2008) found the distance to health facilities, service quality, limited medicine, lack of trained staff, poor attitude of the staff, poor referral system, and lack of knowledge about diseases hindered the implementation of the health service system⁶⁴.

The Socio demography with the Health Perception and Health Service System

The sociodemographic correlation analysis of the illness and health service system perceptions applied Chi-square. Table 5 shows the Chi-square test result. The test obtains significance for all variables to be higher than 0.05. The analysis showed no significant correlation between sex types, age, duration of suffering from stroke, educational level, and family income toward the health perception and health service system.

This research results were not in line with the previous research. Previous research found a

correlation between age and patient perceptions. The other results showed no correlation between sex types, educational level, job status, and monthly incomes toward the perceptions of the patients⁶⁵. Wardhani (2014) found a correlation between sex types and the influential factor of stroke. Males had better knowledge about stroke risk than women⁶⁶. Besides that, the result also found a correlation between educational level and stroke knowledge^{38,67}.

In Indonesia, research reported high-level education influences excellent recognition of the initial stroke symptoms than those with primary school level⁶⁶. Previous studies found no correlation between ages, sex types, educational levels, distance, and healthcare facility utility⁶⁸. Family income and low educational level influenced the individuals to use health services⁵⁸.

Table 5. Chi-Square Test Result

Characteristics	The illness Perception			The Health Service System Perception		
	Excellent	Low	Sig.	Excellent	Low	Sig.
Sex types						
Male	41	28	0.113	33	36	0.452
Female	27	9		20	16	
Age						
<65	35	17	0.589	27	25	0.769
≥65	33	20		26	27	
Stroke duration						
<3 years old	36	21	0.708	24	33	0.062
≥3 years old	32	16		29	19	
Educational level						
Low	10	10	0.307	8	12	0.579
Moderate	39	18		30	27	
High	19	9		15	13	
Family income						
<RMW	19	8	0.428	13	14	0.656
≥RMW	25	16		22	19	

The results of this research are useful for professional health workers or providers. Health workers must provide relevant information to improve patient's knowledge about their diseases and their management. Besides that, health workers must provide excellent services to improve patient satisfaction.

This research was limited to (a) data collection technique with only one hospital so that the results could not be generalized for all stroke patients in Indonesia; (b) the respondents with impossible conditions to join interviews were excluded from the research samples.

Conclusion

The illness and health service system perceptions of the stroke patients at the Special Region of Yogyakarta Regional Hospital were excellent. The research result found no correlation among sex types, ages, durations of suffering from stroke, educational level, and family income toward the illness perception and health service system at the hospital.

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Ethical Consideration

This research received ethical clearance from the Ethical Committee of Research on Public Hospitals at the Special Region of Yogyakarta No. 40/KEPK/RSUD/XII/2022.

Author Contribution

DE, TMA designed the study; SR carried out data collection; SR, DE, TMA analyzed the data; SR, DE, TMA wrote and review the manuscript; All authors read and approved the final version of the manuscript

Conflicting Interest

No conflicting interest in this research.

Abbreviation

JKN : *Jaminan Kesehatan Nasional*
RMW : Regional Minimum Wages
WHO : World Health Organization

References

- Kementerian Kesehatan RI. *Laporan Nasional Rikesdas 2018*. (2018).
- Kementerian Kesehatan RI. *Riset Kesehatan Dasar*. (2013).
- Departemen Kesehatan RI. *Riset Kesehatan Dasar Laporan Nasional 2007*. (2008).
- Kementerian Kesehatan RI. *infodatin: stroke don't be the one*. (2019).
- Jamini, T., Yunita, Yuliyanti & Negara, C. K. Hubungan Kadar Kolesterol Darah dan Hipertensi dengan Kejadian Stroke Di RSUD Ulin Banjarmasin. *J. Kesehat. Indones*. **XI**, 20–34 (2020).
- Mendis, S. Stroke disability and rehabilitation of stroke: World Health Organization perspective. *International Journal of Stroke* vol. 8 3–4 (2013).
- Phillips, L. A., Diefenbach, M. A., Abrams, J. & Horowitz, C. R. Stroke and TIA survivors' cognitive beliefs and affective responses regarding treatment and future stroke risk differentially predict medication adherence and categorised stroke risk. *Psychol. Heal*. **30**, 218–232 (2015).
- Handayani, F. Pengetahuan tentang Stroke, Faktor Risiko, Tanda Peringatan, Respon Mencari Bantuan, dan Tatalaksana pada Pasien Stroke Iskemik di Kota Semarang. *J. Ilmu Keperawatan Med. Bedah* **2**, 1–51 (2019).
- Groeneveld, I. F. *et al.* Illness perceptions of stroke survivors: Predictors and changes over time – A 1 year follow-up study. *J. Psychosom. Res.* **116**, 54–61 (2019).
- Twiddy, M., House, A. & Jones, F. The association between discrepancy in illness representations on distress in stroke patients and carers. *J. Psychosom. Res.* **72**, 220–225 (2012).
- Petrie, K. J. & Weinman, J. Patients' Perceptions of Their Illness: The Dynamo of Volition in Health Care. *Curr. Dir. Psychol. Sci.* **21**, 60–65 (2012).
- Broadbent, E. *et al.* A systematic review and meta-analysis of the Brief Illness Perception Questionnaire. *Psychol. Heal*. **30**, 1361–1385 (2015).
- Faronbi, J. O., Olowokere, A. E., Ayamolowo, S. J., Faronbi, G. O. & Adebisi, M. A. Health Seeking Behaviour and Perception of Quality of Care among Patients with Chronic Diseases in a Nigerian Teaching Hospital. *JOJ Nurse Heal. Care* **5**, 1–6 (2017).
- Tambuwun, P. Z., Wowor, R. E. & Korompis, G. E. C. Hubungan antara Mutu Jasa Pelayanan Kesehatan dengan Kepuasan Pasien Rawat Jalan di Rumah Sakit Umum Daerah Amurang. *Tambuwun, P. Z., Wowor, R. E., & Korompis, G. E. C.* (2020). Hubungan antara Mutu Jasa Pelayanan Kesehatan dengan Kepuasan Pasien Rawat Jalan. *J. KESMAS* **9**, 49–55 (2020).
- Widayanti, A. W., Green, J. A., Heydon, S. & Norris, P. Health-seeking behavior of people in Indonesia: A narrative review. *Journal of Epidemiology and Global Health* vol. 10 6–15 (2020).
- Sugiyono. *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. (Alfabeta, 2017).
- Sunjoyo, Setiawan, R., Carolina, V., Magdalena, N. & Kurniawan, A. *Aplikasi SPSS Untuk Smart Riset*. (Alfabeta, 2013).
- Baroroh, F. & Fauzi, L. A. Analisis Biaya Terapi Stroke pada Pasien Rawat Inap di Rumah Sakit PKU Muhammadiyah Bantul Yogyakarta. *J. Ilm. Ibnu Sina* **2**, 93–101 (2017).
- Setiani, Rimba, I. R. & Dwinta, E. Analisis Perbandingan dan Biaya Perawatan (Cost of illness) Stroke Iskemik dengan Stroke Hemoragik Pasien Rawat Inap di RSUD Panembahan Senopati. *Pharm. J. Indones*. **2021 7**, 29–36 (2021).
- Lavados, P. M. *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. Heal*. **9**, e340–e351 (2021).
- Tsao, C. W. *et al.* Heart Disease and Stroke Statistics—2022 Update: A Report From the American Heart Association. *Circulation* (2022) doi:10.1161/CIR.0000000000001052.
- Goldstein, L. B. *et al.* Guidelines for the primary prevention of stroke: A Guideline for Healthcare Professionals from the American Heart Association/American Stroke Association. *Stroke* **42**, 517–584 (2011).
- Sofan, A. & Syamsudin, S. Analisis Biaya Pengobatan Pasien Stroke Iskemik Rawat Inap Di RSUD dr Dradjat Prawira Negara Serang. *Syntax Lit. ; J. Ilm. Indones*. **6**, 1075 (2021).
- Mazidah, Z., Yasin, N. M. & Kristina, S. A. Analisis Biaya Penyakit Stroke Pasien Jaminan Kesehatan Nasional di RSUD Blambangan Banyuwangi. *J. Manaj. DAN PELAYANAN Farm. (Journal Manag. Pharm. Pract.* **9**, (2019).
- Purbaningsih, S., Wahyono, D. & Suparniati, E. Cost of Illness Pasien Stroke. *J. Manaj. dan Pelayanan Farm.* **5**, 95–103 (2015).
- Rismawan, W., Mustika Lestari, A. & Irmayanti, E. Gambaran Kualitas Hidup dan Karakteristik Pasien Pasca Stroke di Poli Syaraf RSUD DR. Soekardjo Kota Tasikmalaya. *J. Kesehat. Bakti tunas Husada J. Ilmu Keperawatan, Anal. Kesehat. dan Farm.* **21**, 247–262 (2021).
- Sanyasi, R. D. L. R. & Pinzon, R. T. Clinical Symptoms and Risk Factors Comparison of Ischemic and Hemorrhagic Stroke. *J. Kedokt. dan Kesehat. Indones*. **9**, 5–15 (2018).
- Gillis, E. E. & Sullivan, J. C. Sex Differences in Hypertension: Recent Advances. *Hypertension* **68**, 1322–1327 (2016).
- Roy-O'reilly, M., Mccullough, L. D. & Royal, M. Age and Sex Are Critical Factors in Ischemic Stroke Pathology Age and Sex in Ischemic Stroke Age and Sex Are Critical Factors in Ischemic Stroke Pathology. *Endocrinol. Endocr. Soc.* **120** (2018) doi:10.1210/en.2018-00465/5051605.
- Hauer, A. J. *et al.* Age-specific vascular risk factor profiles according to stroke subtype. *J. Am. Heart Assoc.* **6**, (2017).
- Arboix, A. Cardiovascular risk factors for acute stroke: Risk profiles in the different subtypes of ischemic stroke. *World J. Clin. Cases* **3**, 418–429 (2015).
- Tjikoe, M. ., Loho, E. & Ali, R. . Gambaran Hasil CT-Scan Kepala pada Penderita dengan Klinis Stroke Non-Hemoragik di Bagian Radiologi FK.UNSRAT/SMF Radiologi BLU RSUP Prof. Dr. R.D. Kandou Manado Periode Januari 2011-Desember 2011. *J. e-Clinic* **2**, (2014).
- Ghani, L., Mihardja, L. K. & Delima, D. Faktor Risiko Dominan Penderita Stroke di Indonesia. *Bul. Penelit. Kesehat.* **44**, 49–58 (2016).
- Ramdani, M. L. Karakteristik dan Periode Kekambuhan Stroke pada Pasien dengan Stroke

- Berulang di Rumah Sakit Margono Soekaedjo Purwokerto Kabupaten Banyumas. *J. Keperawatan Muhammadiyah* **3**, 1–15 (2018).
35. Grefkes, C. & Fink, G. R. Recovery from stroke: current concepts and future perspectives. *Neurol. Res. Pract.* **2**, 1–10 (2020).
36. Fauzia, I. E., Ahyana & Kasih, L. . Kepatuhan Rehabilitasi Pasien Pasca Stroke di Rumah Sakit Umum Daerah dr Zainoel Abidin Banda Aceh. *JIM FKep* **6**, 1–9 (2022).
37. Hafdia, A. N. A., Arman, Khidri Alwi, M. & Asrina, A. Analisis Kualitas Hidup Pasien Pasca Stroke di RSUD Kabupaten Polewali Mandar. in *Seminar Nasional Sinergitas Multidisiplin Ilmu Pengetahuan dan Teknologi* vol. 1 111–118 (2018).
38. Jessyca, F., Sasmita, P. K., Kedokteran, F. & Kesehatan, I. Hubungan Tingkat Pendidikan dan Pengalaman terkait Stroke dengan Pengetahuan Stroke. *Damianus J. Med.* **20**, 63–71 (2021).
39. Ismatika & Soleha, U. Hubungan Self Efficacy dengan Perilaku Self Care Pasien Pasca Stroke di Rumah Sakit Islam Surabaya. *J. Ilm. Kesehat.* **10**, 139–148 (2017).
40. Taher, R. Faktor-Faktor yang Berhubungan dengan Kepatuhan Menjalani Rehabilitasi Pasien Pasca Stroke di Poliklinik Neurologi RSUD Labuang Baji Makassar. *JIKKHC* **02**, 128–137 (2018).
41. Bariroh, U., Setyawan, H. & Sakundarno, M. Kualitas Hidup Berdasarkan Karakteristik Pasien Pasca Stroke (Studi di RSUD Tugurejo Kota Semarang). *J. Kesehat. Masy.* **4**, 486–495 (2016).
42. Lutz, B. J. *et al.* Improving Stroke Caregiver Readiness for Transition from Inpatient Rehabilitation to Home. *Gerontologist* **57**, 880–889 (2017).
43. O'Connell, N., Jones, A., Chalder, T. & David, A. S. Experiences and illness perceptions of patients with functional symptoms admitted to hyperacute stroke wards: A mixed-method study. *Neuropsychiatr. Dis. Treat.* **16**, 1795–1805 (2020).
44. Jood, K., Ladenvall, C., Rosengren, A., Blomstrand, C. & Jern, C. Family history in ischemic stroke before 70 years of age: The Sahlgrenska academy study on ischemic stroke. *Stroke* **36**, 1383–1387 (2005).
45. Shah, R. S. & Cole, J. W. Smoking and stroke: The more you smoke the more you stroke. *Expert Review of Cardiovascular Therapy* vol. 8 917–932 (2010).
46. Simbolon, P., Simbolon, N. & Ringo, M. S. Faktor Merokok dengan Kejadian Stroke di Rumah Sakit Santa Elisabeth Medan. *J. Kesehat. Manarang* **4**, 18 (2018).
47. Shinton, R. & Beevers, G. Meta-analysis of relation between cigarette smoking and stroke. *Br. Med. J.* **298**, 789–794 (1989).
48. Milionis, H. J. *et al.* Excess body weight and risk of first-ever acute ischaemic non-embolic stroke in elderly subjects. *Eur. J. Neurol.* **14**, 762–769 (2007).
49. Chen, H. J., Bai, C. H., Yeh, W. T., Chiu, H. C. & Pan, W. H. Influence of metabolic syndrome and general obesity on the risk of ischemic stroke. *Stroke* **37**, 1060–1064 (2006).
50. Cameron, J. I., Stewart, D. E., Streiner, D. L., Coyte, P. C. & Cheung, A. M. What makes family caregivers happy during the first 2 years post stroke? *Stroke* **45**, 1084–1089 (2014).
51. Utami, S. T. & Handayani, F. Kajian Literatur: Intervensi Religius Islam dan Dampaknya pada Pasien Stroke. *J. Holist. Nurs. Heal. Sci.* **4**, 116–125 (2022).
52. Maninet, S. & Desaravinid, C. Relationships between illness perception, functional status, social support, and self-care behavior among Thai people at high risk of stroke: A cross-sectional study. *Belitung Nurs. J.* **9**, 62–68 (2023).
53. Liu, Y. *et al.* Association between illness perception and health behaviour among stroke patients: The mediation effect of coping style. *J. Adv. Nurs.* **77**, 2307–2318 (2021).
54. Utama, Y. A. & Nainggolan, S. S. Faktor Resiko yang Mempengaruhi Kejadian Stroke: Sebuah Tinjauan Sistematis. *J. Ilm. Univ. Batanghari Jambi* **22**, 549 (2022).
55. Hardianto, Y. & Adliah, F. Gambaran Efektivitas Penerapan Program Rehabilitasi Stroke Berbasis Rumah di Kota Makassar. *JIKSH* **9**, 18–23 (2020).
56. Fadlilah, S., Lanni, F. & Purnomo, R. T. Analisis Faktor yang Berhubungan dengan Kepatuhan Fisioterapi Pasien Pasca Stroke di RS Bethesda Yogyakarta. *J. Ilk. (Jurnal Ilmu Kesehatan)* **10**, 112–120 (2019).
57. Gusmawan, F., Haryadi, H. & Sutrisna, E. Pengaruh Kualitas Pelayanan Dan Karakteristik Sosiodemografi Terhadap Minat Kunjungan Ulang Yang Dimoderasi Oleh Kepuasan Pasien Pada Pelayanan Rawat Jalan Puskesmas Kedungbanteng Kabupaten Banyumas. *J. Ekon. Bisnis, dan Akunt.* **21**, (2020).
58. Napirah, M. R., Rahman, A. & Tony, A. Faktor-faktor yang Berhubungan dengan Pemanfaatan Pelayanan Kesehatan di Wilayah Kerja Puskesmas Tambarana Kecamatan Poso Pesisir Utara Kabupaten Poso. *J. Pengemb. Kota* **4**, 29–39 (2016).
59. Supartiningsih, S. Kualitas Pelayanan an Kepuasan Pasien Rumah Sakit: Kasus Pada Pasien Rawat Jalan. *J. Medicoeticolegal dan Manaj. Rumah Sakit* **10.18196/jmmr.2016** **6**, 9–15 (2017).
60. Riawati & Wijaya, L. Analisis Persepsi Pasien tentang Mutu Pelayanan Rumah Sakit dan Hubungan dengan Kepuasan Pasien Rawat Jalan di Rumah Sakit Ar-Royyan Indralaya Tahun 2021. *J. Kesehat. dan Pembang.* **12**, 61–69 (2022).
61. Suratni, M. A. ., Suryati, T. & Edwin, V. . Kepuasan Pasien terhadap Kualitas Pelayanan Pasien Rawat Jalan Rumah Sakit di 7 Provinsi di Indonesia. *Bul. Penelit. Kesehat.* **46**, 239–246 (2018).
62. Mboweni, R. F. & Sumbane, G. O. Factors Contributing to Delayed Health Seeking Behaviours Among Adolescents. *Glob. J. Health Sci.* **11**, 67 (2019).
63. Tawil, M. ., Ruru, J. . & Londa, V. . Persepsi Masyarakat tentang Kualitas Pelayanan Kesehatan di Rumah Sakit Umum Daerah Kota Kotamobagu Provinsi Sulawesi Utara. *J. Adm. Publik UNSRAT* **3**, (2017).
64. Kiwanuka, S. N. *et al.* Access to and Utilisation of Health Services for the Poor in Uganda: a Systematic Review of Available Evidence. *Transactions of the Royal Society of Tropical Medicine and Hygiene* vol. 102 1067–1074 (2008).
65. Akhmad, A. D., Satibi & Puspendari, D. A. Analisis Persepsi dan Faktor yang Mempengaruhi Persepsi terhadap Penerapan Sistem Pembiayaan JKN pada Fasilitas Kesehatan Penunjang di D.I. Yogyakarta. *J. Manaj. dan Pelayanan Farm.* **5**, 267–274 (2015).
66. Wardhani, N. R. & Martini, S. Faktor yang Berhubungan dengan Pengetahuan tentang Stroke pada Pekerja Institusi Pendidikan Tinggi. *J. Berk. Epidemiol.* **2**, 13–23 (2014).
67. Vincent-Onabajo, G. & Moses, T. Knowledge of stroke risk factors among stroke survivors in Nigeria.

- Stroke Res. Treat.* **2016**, (2016).
68. Pangganti, A., Pulungan, R. M., Iswanto, A. H. & Yuliana, T. Faktor-Faktor yang Berhubungan dengan Pemanfaatan Pelayanan Kesehatan oleh Peserta Jaminan Kesehatan Nasional (JKN) di Puskesmas Mekarsari Tahun 2019. *Media Kesehat. Masy. Indones.* **18**, (2019).