SOUTH EAST ASIA NURSING RESEARCH
Available on : https://jurnal.unimus.ac.id/index.php/SEANR

Research article

The Relationship of Perceived Severity and Recurrent Stroke Prevention Behavior at Post-Non-Hemorrhagic Stroke Patients

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Article Info

Article History:
Submitted: Feb 7th 2024
Accepted: March 8th 2024
Published: March 9th 2024

Keywords:
perceived severity;
preventive behavior;
recurrent stroke

Abstract

The lack of individual beliefs about the first stroke can cause an increased risk of recurrent stroke in the future causing individuals to behave less well. The theory that can identify individual beliefs for healthy living behavior is the Health Belief Model (HBM), one of which is perceived severity which is the perception of the seriousness of the severity of an illness. This study aimed to determine the relationship between perceived severity and behavior to prevent recurrent stroke in patients after non-hemorrhagic stroke. The study was quantitative descriptive-analytical research with a cross-sectional approach. The research subjects were 70 non-hemorrhagic post-stroke patients at KRMT Wongsonegoro Hospital, Semarang City, using consecutive sampling techniques. Relationship analysis uses the Spearman rank test. Most respondents had sufficient perceived severity as many as 39 respondents (55.7%) and implemented sufficient recurrent stroke prevention behavior in as many as 42 respondents (60%). The Spearman rank test analysis shows that there is a relationship between perceived severity with Recurrent stroke prevention behavior in non-hemorrhagic post-stroke patients (p=0.000) and (r=0.916). Perceived severity is significantly related to adjusting Recurrent stroke prevention behavior in non-hemorrhagic post-stroke patients.

INTRODUCTION

Stroke is a sudden disruption of brain function that lasts more than 24 hours. Stroke pathology is grouped into two types, namely non-hemorrhagic stroke (ischemic stroke) and hemorrhagic stroke.[1] Stroke is the first cause of death and disability in Indonesia.[23] *World Stroke Organization* (WSO) in 2022 stated that more than 12.2 million people suffer from stroke every year.[4] Data from Riskesdas in Indonesia in 2018 showed that, based on doctor's diagnosis, the population aged ≥ 15 years was 10.9% or estimated at 2,120,362 people and stroke cases in Central Java Province itself were 11.8%, namely 96,794 people.[5]

Non-hemorrhagic strokes are more common than hemorrhagic strokes.[1]Non-hemorrhagic strokes are found in around 87%.[3] Non-hemorrhagic stroke is a stroke that occurs when blood flow to the brain stops due to a blood clot blocking the blood vessels.[6] Blood clots can form from

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South East Asia Nursing Research, Vol 6 No 1, March 2024
ISSN:2685-032X
DOI: https://doi.org/10.26714/seanr.6.1.2024.25-31

thrombus that detaches from the walls of large blood vessels to flow distally and attach to smaller downstream vessels.[7] Blood clots can originate from the aorta, arteries, heart and veins in the pelvis or lower extremities.[8] Risk factors for non-hemorrhagic stroke are grouped into non-modifiable and modifiable factors. Nonmodifiable risk factors include age, gender, and race. Meanwhile, risk factors that can be modified include hypertension, smoking, physical activity, hyperlipidemia, diabetes mellitus, alcohol consumption and obesity.[2]

The main lesion of non-hemorrhagic stroke is cerebral infarction. Stopped blood flow results in a reduction in blood supply to the brain tissue, first there is a reversible loss of tissue function and this is followed by loss of neurons and supporting structures.[7] Complete cessation of blood flow to the brain causes loss of consciousness within fifteen to twenty seconds and within seven to ten minutes irreversible brain damage occurs. The basic mechanism of damage is energy deficiency due to ischemia, one of which is embolism.[9]

The impact of neurological deficits can reduce the quality of life of patients such asrestriction of movement, weakness or paralysis of limbs, communication difficulties and mental problems.[10] Neurological deficits prevent individuals from carrying out basic needs such as bathing, eating, dressing, urinating, and others.[11] This causes the patient to no longer be able to work or be able to work but with different productivity as before the stroke. Patients who experience this feel irresponsible towards their families and themselves because of financial difficulties and increase the burden of medical costs.[10]The treatment carried out is therapy to restore perfusion to brain tissue that has experienced an infarction and prevent repeated strokes. Some of the therapies that can be carried out are intravenous recombinant tissue plasminogen activator (rt-PA) therapy, antiplatelet therapy, anticoagulant therapy, and rehabilitation. Intravenous rt PA therapy within three to four and a half hours after stroke onset has been shown to be effective in randomized clinical trials, and this recommendation has been incorporated into guidelines by the American Stroke Association and the European Stroke Organization. Antiplatelet therapy within 48 hours of initial ischemic stroke can reduce the risk of death and improve patient outcomes by reducing the volume of brain damage caused by ischemia, as well as reducing the risk of recurrent ischemic stroke by 25%. Anticoagulant therapy is usually used to prevent cardioembolic stroke secondarily in the long term in patients with atrial fibrillation. Rehabilitation that can be done by stroke sufferers is physical, occupational and speech therapy. Rehabilitation should involve the family with a goal.[1]

The many advances in stroke prevention and treatment still make stroke the leading cause of death and disability throughout the world. Patients who survive a first stroke are known to have a significantly increased risk of a second stroke in the future.[12] A second stroke is also called a recurrent stroke or secondary stroke.[13] The consequence of recurrent stroke is more extensive cerebrovascular disorders resulting in physical and cognitive disability, as well as significant social impacts.[14] Lack of individual confidence in stroke risk factors, stroke symptoms, and therapy programs to prevent re-strokes causes an increase in the incidence of recurrent strokes.[15] For this reason, prevention efforts are needed by changing appropriate healthy behavior patterns, for example avoiding the risk of repeated strokes, taking medication regularly, doing rehabilitation routines, and so on. Human health is greatly influenced by behavior.[16]

Behavior is a person's action towards external stimuli or perceptions from within him.[17] Unhealthy behavior will cause several health problems.[18] Several factors can influence a behavior, namely the

individual's belief or belief in the existence of a disease, culture that makes it easier for the individual to behave, knowledge that can influence the individual's mindset, and the individual's means or environment that supports him or her to carry out a behavior.[17] One theory used to explain individual beliefs about healthy behavior is the Health Belief Model (HBM).[19] HBM has six dimensions, namely perceived severity, perceived severity*susceptibility* (perception of vulnerability), perceived benefit (perception of usefulness), perceived barrier (perception of obstacles), *self-efficacy* (self-confidence), And*cues to action*(action of encouragement). The perceived severity dimension is the perception of the seriousness or severity of an illness. A person who has a high perception of seriousness regarding the severity of an illness will have a higher likelihood of taking preventative action against the disease.[20] From previous research, the results showed that out of 144 respondents, 55 (71.4%) respondents had a level of perceived severity and unfavorable behavior.[21] This study aims to determine the relationship between perceived severity and behavior to prevent recurrent stroke.

METHOD

The study carried out was a quantitative descriptive analytical research with a cross sectional approach. The research subjects were 70 non-hemorrhagic post-stroke patients at KRMT Wongsonegoro Hospital, Semarang City using consecutive sampling techniques, which were adjusted to the inclusion and exclusion criteria. Inclusion criteria involved non-hemorrhagic post-stroke patients who were over forty years old, domiciled in Semarang City, and willing to be respondents. Meanwhile, exclusion criteria include patients with severe physical disabilities and who are uncooperative.

Data collection was carried out using a questionnaire. The questionnaire used in the research is the Questionnaire *Perceived Severity*and the Recurrent Stroke Prevention Behavior Questionnaire which has been tested for validity.The questionnaire used is positive in supporting variable aspects. The questionnaire uses a Likert scale with an interval of 1-4 (1: strongly disagree, 2: disagree, 3: agree, 4: strongly disagree). Relationship analysis uses the Spearman rank test. The research was carried out after the researchers obtained ethical permission from the Health Research Ethics Commission (KEPK) RSD KRMT Wongsonegoro Semarang City (No.010/Kom/EtikRSWN/XI/2023).

RESULTS

Characteristics of respondents at the KRMT Wongsonegoro Hospital, Semarang City with a total of 70 respondents, it was found that the majority of respondents were aged between 45 years and 65 years with a frequency of 48 respondents (68.6%), respondents aged >65 years were 19 respondents. (27.1%), and 3 respondents aged <45 years (4.3%). Based on gender frequency, the majority of respondents were men, namely 36 respondents (51.4%) and 34 respondents (48.6%) women. The majority of respondents' educational levels were respondents with high school graduates as many as 31 respondents (44.3%), elementary school graduates as many as 14 respondents (20.0%), Diploma/Bachelor graduates as many as 10 respondents (14.3%), as many as respondents who had not attended school. 9 respondents (12.9%), and 6 respondents with junior high school graduates (8.6%). Based on employment status, the majority of respondents worked with a frequency of 50 respondents (71.4%) and 20 respondents who did not work (28.6%).

Based on the frequency of marital status, the majority of respondents were married with a total of 64 respondents (91.4%), divorced at death amounted to 5 respondents (7.1%), divorced alive amounted to 1 respondent (1.4%). Based on the frequency of recurrent stroke prevention behavior, 42 respondents

(60%) had adequate recurrent stroke prevention behavior and 28 respondents (40%) had good recurrent stroke prevention behavior. Based on perceived severity, 39 respondents (55.7%) had a sufficient level of perceived severity and 31 respondents (44.3%) had a good level of perceived severity.

Based on table 2. Most respondents have*perceived severity*sufficient (55.7%). The statistical test results obtained using the Spearman rank test obtained a p-value of 0.000, where if the value (p<0.05) indicates a significant relationship between*perceived severity*with recurrent stroke prevention behavior.From the results of the analysis, a correlation coefficient value of 0.916 was also obtained, which shows the strength of the relationship is very strong with the direction of the relationship being unidirectional, meaning that the higher a person's level of perceived severity, the higher the level of behavior to prevent recurrent stroke.

Table 1
Respondent Characteristics

Indicators	f	%
Age		
<45 years	3	4.3
45-65 years old	48	68.6
>65 years	19	27.1
Gender		
Man	36	51.4
Woman	34	48.6
Education		
No school	9	12.9
Elementary school	14	20.0
Junior High School	6	8.6
Senior High School	31	44.3
Diploma/bachelor	10	14.3
Job status		
Work	50	71.4
Doesn't work	20	28.6
Marital status		
Bachelor	0	0.0
Marry	64	91.4
divorced	1	1.4
death divorce	5	7.1
Recurrent stroke prevention behavior		
Bad	0	0
Enough	42	60
Good	28	40
Perceived severity		
Bad	0	0
Enough	39	55.7
Good	31	44.3

Table 2
The Relationship between Perceived Severity and Recurrent Stroke Prevention Behavior

Indicators	Recurrent stroke prevention behavior						Amount		r	p
	Bad		Enough		Good					
	f	%	f	%	f	%	f	%		
Perceived severity										
Bad	0	0	0	0	0	0	0	0	0.916	0,000
Enough	0	0	39	55.7	0	0	39	55.7		
Good	0	0	3	4.3	28	40	31	44.3		

DISCUSSION

Health Belief Model(HBM) is a theoretical framework or framework used to predict individual behavior related to or related to health.[22] Human behavior is an important determinant of the effectiveness of strategies to prevent or control a disease.[23] This model identifies factors that influence individual behavior in dealing with an illness.[22] Evidence shows that people's perceived seriousness can significantly influence their response to a threat. Previous research shows that populations and individuals with higher levels of risk perception are more likely to have infection prevention behaviors to reduce the risk of infection and disease transmission.[23]

The research results showed that the majority of respondents (55.7%) own *perceived severity*and adequate recurrent stroke prevention behavior. From the results of the Spearman rank analysis, a p-

value of 0.000 ($p < 0.05$) was obtained, which shows that there is a significant relationship between perceived severity and behavior to prevent recurrent stroke in non-hemorrhagic post-stroke patients. This is in line with research by Khazaeian et al (2020) which states that people who have a high perception of disease severity tend to take good preventive measures.[24] In addition, research by Zewdie et al (2022) stated that the level of severity felt by the individual significantly predicted healthy behavior. However, this is not in line with research by Shah et al (2021) which states that the public's perception of the level of severity does not change people's behavior in preventing a disease. The lack of response to the severity of an illness may be due to an external locus of control, namely an individual's beliefs regarding changes in behavior that are significantly influenced by environmental factors that the individual himself is unable to influence.[25]

*Perceived severity*can originate from individual beliefs due to the illness suffered in their life.[26] Individuals will utilize information and signs and symptoms felt by individuals to form a perception.[27]The perception of the severity or seriousness of an illness will stimulate individuals to take preventive action to prevent the severity of an illness.[16] In this study, the majority of respondents had a sufficient level of perceived severity with the average perception being that respondents had difficulty speaking due to the stroke they suffered so that respondents had regular control and carried out speech therapy. Difficulty speaking is one of the disorders experienced by stroke sufferers due to neurological deficits due to blockage of blood vessels in the brain.[28]Respondents who have such perceptions are expected to motivate respondents to take proactive treatment or prevention strategies so as to improve respondents' health behavior.[27]

Respondents who have a high perception of the seriousness of the effects of a disease have a higher likelihood of taking preventive action against that disease.[20]For example, respondents in this study who experienced a stroke will take preventive measures so as not to experience the serious effects of a stroke. The severity of stroke itself is paralysis of the extremities, visual impairment, speech impairment, neuropsychiatric disorders and recurrent stroke.[9] The consequence of recurrent stroke is more extensive cerebrovascular disorders resulting in physical and cognitive disability, as well as significant social impacts. The risk of stroke recurrence may be related to previously undetected risk factors that were overlooked.[14]

Increasing the adaptive behavior of recurrent stroke patients regarding health is an effective step to prevent recurrent stroke. Behaviors that can improve health include behaviors that are spontaneous, easy to implement, and carried out continuously to maintain or improve an individual's health.[27] Recurrent stroke prevention behavior carried out by stroke sufferers can include regular check-ups with doctors, compliance with taking medication according to doctor's recommendations, healthy diet, routine blood pressure control, and physical activity.[29] Two of the behaviors to prevent recurrent stroke that the majority of respondents carried out were avoiding consuming soda and maintaining an ideal body weight. Soda drinks or soft drinks are carbonated drinks that have added sweeteners or flavourings. The sweeteners used are sugar-based sweeteners and artificial sweeteners.[30] Sweeteners added to carbonated drinks increase the risk of hypertension, type 2 diabetes and stroke.[31] Excessive sugar in the blood vessels can cause an increase in LDL cholesterol (Low-density lipoprotein) resulting in atherosclerosis.[32] Maintaining an ideal body weight is an action to prevent obesity. Obesity is a body mass index that is more than the normal limit. Too much food energy in the body and not used by the body can cause obesity.[33] This requires behavioral changes or lifestyle

modifications. In one study, 80% of recurrent strokes could be prevented by managing and controlling risk factors through lifestyle modifications or behavioral changes.[15]

CONCLUSION

The majority of respondents had a sufficient level of perceived severity, amounting to 39 respondents (55.7%). The majority of respondents had sufficient behavior to prevent recurrent stroke, amounting to 42 respondents (60%).There is a very strong relationship between perceived severity andRecurrent stroke prevention behaviorin non-hemorrhagic post-stroke patients at KRMT Wongsonegoro Hospital, Semarang City. The higher the perceived severity, the higher it isRecurrent stroke prevention behavior.

ACKNOWLEDGMENT

The researcher would like to say thank you to all the participated as research respondents.

CONFLICTS OF INTEREST

Neither of the authors has any conflicts of interest that would bias the findings presented here.

BIBLIOGRAPHY

1. Mutiarasari D. Ischemic Stroke: Symptoms, Risk Factors, and Prevention. Jurnal Ilmiah Kedokteran Medika Tandulako. 2019;6(1):60–73.
2. Azzahra V, Ronoatmodjo S. Faktor-faktor yang Berhubungan dengan Kejadian Stroke pada Penduduk Usia ≥15 Tahun di Provinsi Daerah Istimewa Yogyakarta (Analisis Data Riskesdas 2018). Jurnal Epidemiologi Kesehatan Indonesia. 2023;6(2).
3. Pribadhi H, Putra IBK, Adnyana IMO. Perbedaan kejadian depresi pasca-stroke pada pasien stroke iskemik lesi hemisfer kiri dan kanan di RSUP SANGLAH tahun 2017. Jurnal Medika. 2019;8(3).
4. World Stroke Organization. Global Stroke Fact Sheet 2022 Purpose : Data sources : World Stroke Organization (WSO). 2022;13:1–14.
5. Kemenkes RI. Hasil Riset Kesehatan Dasar Tahun 2018. Kementrian Kesehatan RI. 2018;53(9):1689–99.
6. Tamburian, Andrytha G, Ratag, Tarmady, Budi, Nelwan, et al. Hubungan antara Hipertensi, Diabetes Melitus dan Hiperkolesterolemia dengan Kejadian Stroke Iskemik. Journal of public health and community medicine. 2020;1(1):27–33.
7. Feske SK. Ischemic Stroke. American Journal of Medicine. 2021;134(12):1457–64.
8. Ibrahim F, Murr N. Embolic Stroke. StatPearls. 2020.
9. Silbernagl S, Lung F. Teks & Atlas Berwarna Patofisiologi. Penerbit Buku Kedokteran EGC. 2007. 360 p.
10. Abdu S, Satti YC, Payung F, Soputan HA. Analisis Kualitas Hidup Pasien Pasca Stroke Berdasarkan Karakteristik. Jurnal Keperawatan Florence Nightingale. 2022;5(2):50–9.
11. Kevdzija M, Marquardt G. Impact of distance on stroke inpatients' mobility in rehabilitation clinics: a shadowing study. Building Research and Information. 2022;50(1–2):74–88.
12. Lin B, Zhang Z, Guo Y, Wang W, Mei Y, Wang S, et al. Perceptions of recurrence risk and behavioural changes among first-ever and recurrent stroke survivors: A qualitative analysis. Health Expectations. 2021;24(6):1962–70.
13. Firuza KN, Khamsiyati SI, Lahdji A, Yekti M, Kedokteran F, Semarang UM, et al. Analisis Faktor Risiko Serangan Stroke Berulang pada Pasien Usia Produktif Analysis of Risk Factor of Recurrent Stroke in Young Patients Berdasarkan data Riset Kesehatan Dasar. Medica Arteriana. 2022;4(1):1–10.
14. Kolmos M, Christoffersen L, Kruuse C. Recurrent Ischemic Stroke – A Systematic Review and Meta-Analysis. Journal of Stroke and Cerebrovascular Diseases. 2021;30(8).
15. Amila, Sinaga J, Evarina S. Pencegahan Stroke Berulang Melalui Pemberdayaan Keluarga Dan Modifikasi Gaya Hidup. Jurnal Abdimas. 2019;22(2):143–50.
16. Emaliyawati E. Pengetahuan Tentang Stroke Dan Persepsi Pencegahan Stroke Relapse Pada Pasien Stroke. Keperawatan. 2021;13(1):9–20.
17. Juditha C. Perilaku Masyarakat Terkait Penyebaran Hoaks Covid-19. Journal Pekommas. 2020;5(2):105.

18. Lahdji A, Pudjonarko D, Shaluhiyah Z. Risk factors correlated with stroke in the population aged over 15 years in semarang : a retrospective study. 2024;13(1):872–6.

19. Sa'diyah DR, Surjaningrum ER. Health Belief Model pada Perilaku Merokok Menurut Tingkat Pendapatan. Buletin Riset Psikologi dan Kesehatan Mental (BRPKM). 2021;1(1):638–48.

20. Kelana MLI, Anggraheny HD, Faizin C. Perbedaan Perceived Susceptibility dan Severity Pelaksanaan Protokol Kesehatan Covid-19 Masyarakat Perkotaan dan Pedesaan. KELUWIH: Jurnal Kesehatan dan Kedokteran. 2022;3(2):84–92.

21. Ambarika R. Health Belief Model Dalam Upaya Meningkatkan Perilaku Waspada Stroke Pada Kelompok Risiko Tinggi Di Wilayah Kerja Puskesmas Poncokusumo Kabupaten Malang. Jurnal Ilmiah Kesehatan STRADA. 2016;5(2):53–62.

22. Maisyaroh A, Arifin A, Nurhayatun E. Analisis Tingkat Kepatuhan Masyarakat terhadap Protokol Kesehatan COVID-19 dengan Pendekatan Health Belief Model. Smart Medical Journal. 2021;4(3):125–35.

23. Al-Raddadi R, Bahabri N, AlRaddadi Z. Perceived COVID-19 Severity, Risk of Infection, and Prevention Self-Efficacy in Saudi Arabia During Lockdown: A Population-Based National Study. Journal of Epidemiology and Global Health. 2023;13(1):32–46.

24. Khazaeian S, Khazaeian S, Fathnezhad Kazemi A. Pregnant Women's Knowledge, Perceived Severity, and Perceived Controllability of The COvid-19 and Their Associations With Emotional and Behavioral Reactions: A Cross-Sectional Study. Research Square. 2020;1–21.

25. Shah GH, Faraz AA, Khan H, Waterfield KC. Perceived Benefits Matter The Most In COVID-19 Preventive Behaviors: Empirical Evidence From Okara District, Pakistan. International Journal of Environmental Research and Public Health. 2021;18(13):1–12.

26. Fitriani Y, Pristianty L, Hermansyah A. Pendekatan Health Belief Model (HBM) untuk Menganalisis Kepatuhan Pasien Diabetes Melitus Tipe 2 dalam Menggunakan Insulin. PHARMACY: Jurnal Farmasi Indonesia (Pharmaceutical Journal of Indonesia). 2019;16(2):167.

27. Liu Y, Wei M, Guo L, Guo Y, Zhu Y, He Y. Association between illness perception and health behaviour among stroke patients: The mediation effect of coping style. Journal of Advanced Nursing. 2021;77(5):2307–18.

28. Sheppard SM, Sebastian R. Diagnosing and managing post-stroke aphasia. 2021;21(2):221–34.

29. Kleindorfer DO, Towfighi A, Chaturvedi S, Cockroft KM, Gutierrez J, Lombardi-Hill D, et al. Guideline for the prevention of stroke in patients with stroke and transient ischemic attack; A guideline from the American Heart Association/American Stroke Association. Stroke. 2021;(52):E364–467.

30. Silva PD, Cruz R, Casal S. Sugars and artificial sweeteners in soft drinks: A decade of evolution in Portugal. Food Control. 2020;

31. Reed EL, Worley ML, Kueck PJ, Pietrafasa LD, Schlader ZJ, Johnson BD. Cerebral vascular function following the acute consumption of caffeinated artificially- and sugar sweetened soft drinks in healthy adults. Frontiers in Human Neuroscience. 2022;16(December):1–15.

32. Harsianti S, Handayani D, Umar F. Pengaruh Konsumsi Minuman Berkarbonasi terhadap Kadar Kolesterol Penderita Hiperkolesterolemia di Kelurahan Lancirang. Journal Ilmiah Manusia dan Kesehatan. 2021;4(2):172–80.

33. Septiyanti, Seniwati. Obesity and Central Obesity in Indonesian Urban Communities. Jurnal Ilmiah Kesehatan (JIKA). 2020;2(3):118–27.