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The Influence of Providing Information and Educational Media in Efforts to Prevent Stroke

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Abstract
Stroke is the leading cause of physical and mental disability worldwide. In Indonesia, the incidence of stroke is alarmingly high, affecting approximately 10.9% of the population annually, with around 713,783 individuals experiencing stroke each year. Understanding how to prevent stroke is crucial. Clear and regular information, along with effective educational media, are essential for increasing public awareness of stroke. This study aims to determine the impact of social media and knowledge on stroke prevention. This type of study is a non-experimental quantitative study using a cross-sectional. This study is conducted in portions, with patients who are willing and able to talk effectively. Univariate, bivariate, and multivariate analyses were conducted using Pearson correlation tests and linear regression tests. The results show that among the 100 respondents, most were male, aged 41-60 years, and engaged in the best stroke prevention efforts. The Pearson correlation test showed significant correlations between information accuracy, frequency, and educational media for stroke prevention (Pearson p=0.89; p=0.62; p=0.75). The linear regression test revealed that the clarity of information, frequency of information, and educational media together increased stroke prevention efforts (p=0.037), with the clarity of information being the most significant factor. The conclusion is the study concludes that educational media and accurate information are crucial in preventing stroke. It is recommended that the Kasih Sayang Clinic conducts comprehensive stroke education and screening every six months to enhance prevention efforts.

Keywords: Stroke, Prevention, Social Media, Educational Media, Public Awareness, Indonesia

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1. INTRODUCTION

Stroke is a medical condition that causes physical and mental problems worldwide. According to a World Health Organization report, stroke is the second leading cause of death after heart disease (Helboe, Eddelien, & Kruuse, 2023). In the United States, stroke significantly impacts society, being the leading cause of long-term disability and the second highest cause of death. It is estimated that about 7 million adults in the United States have had a stroke, representing about 3% of the adult population, with 600,000 new stroke cases occurring each year. The majority of these strokes (87%) are ischemic infarctions, 10% are primary hemorrhagic strokes, and 3% are subarachnoid strokes. Although less common, strokes also occur in children, with about 1 to 2.5 per 100,000 children experiencing a stroke each year, of which 50 to 75 percent are hemorrhagic strokes (Saini, Guada, & Yavagal, 2021).

In Indonesia, the 2018 Basic Health Survey conducted by the Ministry of Health of the Republic of Indonesia showed that approximately 10.9% of the population experiences a stroke each year, with the number of cases reaching 713,783 annually. East Kalimantan has the highest incidence of stroke in Indonesia, with 14.7% of the total population or 9,696 cases. Most stroke cases in Indonesia occur in individuals over the age of 75, the age group with the highest risk factors (Venketasubramanian, Yudiarto, & Tugasworo, 2022). Various conditions and behaviors such as hypertension, diabetes, dyslipidemia, unhealthy diet, smoking, lack of physical activity, alcohol consumption, and other health conditions like primary hypertension and cardiovascular disease are stroke risk factors. Managing these risk factors through a healthy diet, regular exercise, weight control, and a healthy lifestyle is crucial for stroke prevention (Aini, et al., 2022).

Stroke complications that can occur after a brain attack are very serious and can affect other body functions, including severe brain injury, cognitive impairments, speech and walking difficulties, and other health problems such as heart disease and liver failure (Buckley et al., 2022). Public knowledge and understanding of risk factors are one of the effective ways to prevent stroke (Talango & Kusdhiarningsih, 2024). However, more research is needed to assess how effectively information and educational media are used for stroke prevention (Firmawati, Rochmawati, & Setyopranoto, 2023). According to Dewi, et al., (2022), many patients who experience recurrent strokes are unaware of the risk factors that caused the attacks. Therefore, education on stroke prevention needs to be provided to the general healthy population to reduce the risk of recurrent stroke attacks (Mone, et al., 2023).

Research by Ali et al., (2023) shows that education can significantly improve public understanding of stroke risk factors. Before education, only 31% of respondents correctly answered questions about stroke risk factors, but this number increased to 72.4% after the educational program. This highlights the importance of educational programs in raising public awareness. To enhance awareness and understanding of stroke prevention, medical professionals should use clear and easily understandable tools for patients and their families. The study by Bhattad & Pacifico, (2022) indicates that the physical and psychosocial quality of life of patients can be improved with personalized patient education and verbal instructions from healthcare providers, which also increases overall patient satisfaction. This study aims to determine the impact of social media and knowledge on stroke prevention.

2. RESEARCH METHOD

This research method uses a quantitative, non-experimental study employing a cross-sectional design to evaluate the impact of information provision and educational media on stroke prevention. The study was conducted at Kasih Sayang Clinic in Medan, North Sumatra, starting in February 2024. The population included all patients receiving medical care at the clinic, with a total sample size of 100 respondents selected through total sampling.

A representative sample of patients who were willing and able to answer a validated and reliable questionnaire was selected. Primary data were collected through direct surveys, while secondary data were obtained from literature and journals. The study investigated three independent variables: frequency of information delivery, clarity of information delivery, and educational media, which were hypothesized to impact the dependent variable, stroke prevention.

Data analysis included univariate analysis to describe the characteristics of the variables. Bivariate analysis using Pearson or Spearman rho correlation tests to examine relationships between independent variables and stroke prevention. Multivariate analysis employing ordinal regression to evaluate the influence of independent variables on stroke prevention. Variable selection was based on p-values <0.25, with the elimination of variables with p-values >0.05. This comprehensive approach aimed to identify significant factors contributing to effective stroke prevention efforts. This research has also received ethical approval from the Prima Indonesia University health research ethics commission with number: 009/KEPK/UNPRI/V/2024.

3. RESULTS AND DISCUSSION

Table 1. Participant characteristics and demographics

Gender	**n**	**Percentage (%)**
Male	56	56
Female	44	44
Age	**n**	**Percentage (%)**
20 - 40	22	22
41 - 60	52	52
61 - 80	26	26

Table 1 shows that the characteristics of respondents include age and gender, with the majority being aged 41-60 (52%) and male (56%).

Table 2. Pearson correlation matrix in the study of stroke prevention efforts

Frequency of Information			**Clarity of Information**	**Educational Media**	**Stroke Prevention**
Frequency of Information	Pearson Correlation	1	.721**	.682**	.619**
	Sig. (2-tailed)		.000	.000	.000
	N	100	100	100	100
Clarity of Information	Pearson Correlation	.721**	1	.682**	.883**
	Sig. (2-tailed)	.000		.000	.000
	N	100	100	100	100
Educational Media	Pearson Correlation	.682**	.682**	1	.750**
	Sig. (2-tailed)	.000	.000		.000
	N	100	100	100	100
Stroke prevention	Pearson Correlation	.619**	.883**	.750**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	100	100	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2 shows that the bivariate analysis using Pearson's test indicated a normal data distribution (p=0.200, p > 0.05). Positive and significant correlations were found between the frequency (r=0.619, p=0.005) and clarity of information (r=0.883, p=0.005) with stroke

prevention efforts. Educational media also showed a significant positive correlation with stroke prevention efforts (r=0.750, p=0.005), indicating that higher frequency, clarity, and effectiveness of educational media correspond to better stroke prevention efforts.

Information frequency refers to how often information on stroke risks, signs, symptoms, and prevention actions is conveyed. While 92% of respondents felt the information frequency was adequate, the correlation between information frequency and stroke prevention was not statistically significant (r=0.62, p>0.05). Nonetheless, this study aligns with others indicating that frequent information can enhance stroke prevention knowledge and behaviors (Sahirah, Ikhsan, & Nadira, 2023).

Information clarity pertains to how clear and accurate the provided information on stroke risks and prevention actions is. Ninety-four percent of respondents found the received information clear, with a significant positive correlation (r=0.883, p=0.005), highlighting the pivotal role of information clarity in stroke prevention (Hariadi, Pamungkas, & Sidharta, 2020).

Educational media encompasses various resources for disseminating information about stroke and its prevention. Ninety-five percent of respondents felt satisfied with educational media, correlating significantly (r=0.75, p=0.005). Effective educational media can boost awareness and influence stroke prevention behaviors (Gandolfo, et al., 2022).

Table 3. Linear regression matrix in the study of stroke prevention efforts.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.632	1.715		2.118	.037
Frequency of Information	-.224	.086	-.170	-2.609	.011
Clarity of Information	.665	.056	.777	11.940	.000
Educational Media	.564	.103	.336	5.451	.000

Multivariate analysis evaluated the joint impact of information frequency, clarity, and educational media on stroke prevention efforts. Variables with $p < 0.25$ were included. Results of linear regression showed that collectively, these factors significantly influenced stroke prevention efforts (p=0.037). Among them, information clarity had the most significant impact (beta=0.665), indicating its dominance in enhancing stroke prevention compared to frequency and educational media.

Overall, this study emphasizes the importance of clear and frequent information dissemination, along with the effective use of educational media, in stroke prevention efforts. Clear information enhances patient understanding of risks and preventive actions, while educational media boosts public awareness and knowledge about stroke prevention. These findings can guide the development of more effective health education programs at Kasih Sayang Clinic and other healthcare facilities, focusing on improving information clarity and utilizing appropriate educational media.

Multivariate analysis indicates that information frequency, clarity, and educational media collectively influence stroke prevention (p=0.037). Information clarity has the strongest influence, with a beta value of 0.665. High information frequency and educational media aid understanding and effective prevention actions (Wardhani Firdaus, & Mayasari, 2023).

Information clarity emerges as the most dominant factor affecting stroke prevention. Clear information aids understanding of symptoms and preventive actions. Structured information use assists individuals in managing stroke risks, such as reducing alcohol consumption and stress (Lonini et al., 2022). Clear information dissemination enhances public awareness of stroke risks and their ability to address these risks. General information can elevate awareness and preventive actions (Romadoni, 2023).

The Role of Information Frequency in Stroke Prevention Efforts at the Kasih Sayang Clinic

In efforts to prevent stroke, the frequency of information refers to how often or repetitive the information about risk factors, signs and symptoms, and preventive measures of stroke are conveyed to the public. The term "frequency of information" refers to how often or repeatedly the information is delivered to individuals or communities within a certain period of time (Pomalango, 2022).

This study is in line with a study by Sahirah et al., (2023), The results show that people who receive information about stroke risk regularly have a lower likelihood of stroke than those who do not receive such information. This indicates that frequent dissemination of information can increase people's awareness of stroke risk and influence how they act when facing such risk.

One important factor in stroke prevention is the high frequency of information. Individuals who receive information regularly can understand stroke risk factors such as high cholesterol, hypertension, and diabetes, and can take effective preventive actions to prevent stroke. Therefore, a high frequency of information can increase people's awareness of stroke risk and influence how they behave when facing such risk. This can help prevent recurrent strokes and expedite physical and psychological recovery after an attack (Firmawati, Rochmawati & Setyopranoto, 2023).

In various ways, the use of a high frequency of information can help prevent stroke. For example, information regularly distributed on social media can increase people's awareness of stroke risk and how they treat such risk (Garg, et al., 2023). Health education programs with a high level of information can also help people understand stroke risk factors and take effective preventive actions. A high frequency of information during consultations with doctors can help people better understand stroke diagnoses and treatments, as well as influence how they behave in the face of risk (Rakhma et al., 2023).

The Role of Information Clarity in Stroke Prevention Efforts at the Kasih Sayang Clinic

Stroke causes brain nerve cells to no longer function normally, resulting in cognitive, mental, paralysis, or death impairments (Rahayu, 2023). Therefore, public awareness is crucial in preventing this disease by providing information about stroke. Thus, people can take preventive actions to reduce the risk of stroke before it's too late (Boehme, Esenwa, & Elkind, 2017).

In stroke prevention efforts, information clarity focuses on the importance of providing clear and accurate information to individuals about stroke risks and methods to avoid them (Hariadi, Pamungkas, & Sidharta, 2020). This is based on the idea that clearly received information can help people understand stroke risk factors and take effective preventive actions to prevent stroke.

Providing clear and accurate information about stroke disease, including symptoms, diagnosis, and treatment, is essential. Regularly received information can help people better understand stroke disease and choose appropriate treatment (Pomalango, 2022). Providing clear information can be used in various ways to prevent stroke, such as through health education programs, social media, or consultations with doctors (Romadoni, 2023). Therefore, providing clear information can increase people's awareness of stroke risk and influence how they act when facing such risk.

The Role of Educational Media in Stroke Prevention Efforts at the Kasih Sayang Clinic

In stroke prevention efforts, educational media focuses on the importance of using various resources to provide clear and accurate information about stroke disease and how to

prevent it from occurring. According to Pomalango et al., (2022), this statement is based on the idea that people can learn more about stroke risk factors and take effective preventive actions.

Educational media states that clear and accurate information about stroke disease can be provided through various media, such as social media, health education programs, and consultations with doctors (Gandolfo et al., 2022).

Educational media can be used to prevent stroke in various ways, such as through health education programs and consultations with doctors (Romadoni, 2023). Thus, educational media can increase people's awareness of stroke risk and change how they act when facing such risk. Therefore, educational media can help raise individuals' awareness of stroke risk and influence their behavior when facing such risk.

In Indonesia, various parties, including the government, health institutions, and medical institutions, have implemented programs to prevent stroke. Among them is a program by the Ministry of Health of the Republic of Indonesia called GATROK SEDI (Early Stroke Prevention) and CERDIK (Stroke Prevention through Risk Detection and Education). Both programs focus on raising public awareness about the dangers of stroke and how to prevent it (Laili, Heni, & Tanoto, 2023).

At Pertamina Jaya Hospital, various types of educational media are also used, such as leaflets, videos, and consultations with doctors, with a focus on providing education about stroke and providing comprehensive health services to prevent and manage stroke (Lonini et al., 2022)

The Influence of Information Frequency, Information Clarity, and Educational Media on Stroke Prevention Efforts

As part of stroke prevention efforts, increasing the amount of information provided, the clarity of information provided, and the use of educational media can help raise public awareness about stroke risk and how to avoid it (Murthy, Thomas, & Dasgupta, 2019). The clarity of information received regularly can help people understand stroke risk factors and effective preventive actions. A high frequency of information can also help people understand stroke disease and its treatment. To increase public awareness about stroke risk and how to avoid it, educational media can take the form of videos, leaflets, or consultations with doctors (Wardhani, Firdaus & Mayasari, 2023).

A high frequency of information can help individuals understand stroke risk factors and develop effective preventive actions, while the clarity of information received regularly can help individuals understand stroke disease and how to treat it (Rupasinghe et al., 2022). The educational media used can help raise public awareness about stroke risk and how to avoid it, as well as influence their behavior when facing such risk (Azali, et al., 2023).

This study has similar findings to a study found by Kusumawaty & Nurapandi, (2023), which showed that individuals who received education about stroke through educational media had a lower likelihood of stroke compared to those who did not receive such education. The simultaneous use of information frequency, information clarity, and educational media in stroke prevention efforts can help raise public awareness about stroke risk and how to avoid it, as well as influence behavior when facing such risk (Khan et al., 2021).

Factors Influencing Stroke Prevention Efforts at the Kasih Sayang Clinic

The use of information in an organized structural format can also help individuals understand stroke risk factors and how to manage them. Therefore, information presented in this format can help individuals understand how to reduce stroke risk, such as reducing alcohol consumption, reducing caloric intake, and reducing stress (Prabhakaran & Chong, 2014). Thus,

information presented in this format can help individuals understand how to reduce stroke risk and how to treat it (Firmawati, Rochmawati & Setyopranoto, 2023).

Based on the results of several studies, the dissemination of clear information can increase public awareness about stroke risk and improve their ability to face such risk. Therefore, clear information can help raise public awareness about stroke risk and improve their actions in facing such risk (Sahirah, Ikhsan & Nadira, 2023).

4. CONCLUSION

This research concludes that the frequency and clarity of information, along with educational media, play crucial roles in stroke prevention efforts at the Kasih Sayang Clinic. Clarity of information emerged as the most influential factor, highlighting the need for easily understandable public health information. The recommendation is to enhance stroke prevention, Kasih Sayang Clinic should increase educational activities and promotive information, such as regular seminars on healthy lifestyles. Participants are encouraged to continue exploring the latest prevention strategies. Future research should include additional variables like family support and individual knowledge to deepen the understanding of factors supporting stroke prevention efforts. These conclusions and recommendations can guide improved stroke prevention and overall community health.

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