

Analysis of Dominant Risk Factors for Stroke Incidence and Unhealthy Lifestyle at Sidomulyo Pekanbaru Health Center

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Abstract

The introduction of health in the community is not only seen in the health sector but also must be seen in all sectors that influence health problems. Generally, there are two kinds of causes of stroke. The first is a blockage of the arteries, called ischemic stroke, while the second cause is rupture of blood vessels, or stroke ischemic, while the second cause is a rupture of blood vessels called a hemorrhagic stroke. Other causes of stroke can be a temporary disruption of blood flow to the brain, commonly referred to as an ischemic attack (TIA). These three conditions have a series of potential factors that trigger stroke. Hemorrhagic. Other causes of stroke can be a temporary disruption of blood flow to the brain, commonly referred to as an ischemic attack (TIA). These three conditions have a series of potential factors that trigger stroke. The study employed the Spearman rank correlation test method to investigate the relationship between smoking habits, alcohol consumption, lack of physical activity, and the occurrence of stroke. It involved 41 respondents from the Sidomulyo Health Center's jurisdiction. The findings revealed a significant association between smoking habits and stroke, as indicated by a significance value of 0.007, which is less than the threshold of 0.05. Similarly, there was a significant relationship observed between alcohol consumption and stroke, with a significance value of 0.016. However, the analysis showed no significant correlation between lack of physical activity and stroke, as the significance value of 0.446 exceeded the threshold of 0.05.

Keywords: Cigarettes, Alcohol, Lack Of Activity, Stroke

Introduction

Health advancement constitutes a fundamental aspect of national progress, striving to ensure that all individuals possess the capacity to lead healthy lives and attain an optimal level of health (Sciences et al., 2020). The objectives of health advancement encompass raising awareness, fostering willingness, and enhancing the capability of every individual to maintain a healthy lifestyle, thereby promoting the attainment of an ideal public health status (Bowleg, 2021). Realizing a healthy state is a very complex condition that is interrelated between the health sector and sectors outside health. Maintaining health is not solely the responsibility of the healthcare sector but also extends to other sectors beyond healthcare.

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Similarly, solving health problems in the community is not only seen from the health sector but also must be seen from all sectors that influence these health problems (Marahatta et al., 2020).

Many factors affect health, both individual health and public health. For this, Hendrik L Bloom described factors that affect health, including heredity, health services, health status, environment, and behavior ((Zavala et al., 2021);(Chow et al., 2022)). Generally, there are two kinds of causes of stroke. The first cause is a blockage of the arteries, called ischemic stroke, while the second cause is the rupture of blood vessels, called a hemorrhagic stroke (Hong et al., 2021). Beyond the two causes mentioned, other causes of stroke can be a temporary disruption of blood flow to the brain, commonly referred to as Ischemic Attack (TIA). However, usually, the symptoms of TIA stroke do not last long ((Pohl et al., 2021);(Amarenco, 2020)).

All three conditions have a series of potential factors that trigger stroke. When nicotine and carbon monoxide in cigarette smoke damage the cardiovascular system and open up the chances of stroke (Dorey, Scheerlinck, Nguyen, & Albertson, 2020). Smoking can reduce the risk of stroke by 12%. Lack of exercise can make a person overweight or obese, with diabetes and also high blood pressure. That way, the risk of stroke will be higher. Therefore, try to be at least active by exercising 150 minutes a week (Jeong et al., 2021). If you do not want to struggle to exercise, do other physical movements and at least reduce your sitting time. In addition to refreshing the body, exercise can reduce the risk of stroke by 36 percent. This is undoubtedly a behavioral factor or lifestyle/bad habit that can cause stroke, such as smoking, drinking alcohol, and lack of physical activity (Yehuda et al., 2023).

For the working area of the Sidomulyo Health Center from January 2022 - March 2023, the number of patients with stroke was 41 people who visited, which is not among the ten largest diseases (Amareta, Perwiraningrum, & Arifianto, n.d.). This disease is thought to have something to do with a bad individual hud up style, smoking alcoholic beverages, lack of unhealthy activities, and rudimentary food and beverage supervision factors that contribute to stroke (Kingham, Kemps, Prichard, & Tiggemann, 2023). In addition, an unhealthy lifestyle is also a risk factor, such as frequent consumption of fast food, alcohol, smoking, drugs, lack of exercise, and high cholesterol and uric acid (Jakše, Godnov, Fras, & Fidler Mis, 2024). Puskesmas Sidomulyo, located in the old sub-district of Madani, is a vulnerable area at the western end of the city of Pekanbaru; data from the Pekanbaru City Health Office states that the Sidomulyo Health Center is among the top 10 highest visits of patients with hypertension (Ricka Marlina, 2023).

The submission above and the results of the initial survey in the field from December 2022 to March 2023 in the Sidomulyo Health Center Area found that there are stroke patients with various factors behind it, so research needs to be carried out related to the occurrence of stroke. Based on this description, the formulation of the problem in this study needs to be analyzed domina risk factors, which are reviewed unhealthy lifestyles or habits associated

with the incidence of stroke in the Working Area of the Sidomulyo Health Center, Handsome District, Pekanbaru City. Therefore, this study aims to determine the risk factors for dominant reviewed unhealthy lifestyles or habits associated with the incidence of stroke in the work area of the Sidomulyo Health Center in Pekanbaru City by knowing the relationship between smoking, drinking alcohol, and lack of activity factors with the occurrence of stroke in the work area of the Sidomulyo Health Center, Tuah Madani District, Pekanbaru City.

This study contributes to the field by examining the predominant risk factors for stroke incidence and the unhealthy lifestyle habits associated with stroke within the Sidomulyo Health Center's jurisdiction in Pekanbaru City. By utilizing the Spearman Rank correlation test method, the research explores the interplay between smoking habits, alcohol consumption, lack of physical activity, and the occurrence of stroke. The results uncover noteworthy associations between smoking and alcohol consumption and stroke, indicating a moderate correlation between these behaviors and stroke risk. This study adds to the literature on stroke risk factors by offering specific insights into how these lifestyle factors relate to stroke incidence locally, informing targeted public health interventions and prevention strategies.

The uniqueness of this research lies in its focus on the particular population served by the Sidomulyo Health Center, an area with a heightened prevalence of hypertension. Employing the Spearman Rank correlation test method provides a nuanced examination of the connections between lifestyle factors and stroke risk, offering valuable insights for crafting tailored prevention and intervention approaches for the local community. Moreover, the study underscores the significance of addressing unhealthy lifestyle habits like smoking and heavy drinking in stroke prevention endeavors, emphasizing the necessity for comprehensive public health initiatives that target these behaviors alongside established risk factors such as hypertension and physical inactivity.

Research Methods

The study employed the Spearman Rank correlation test method to assess the correlation between variables. The selection of this method was driven by the nature of the data, where relationships between variables could be either positive or negative, and the data needed to be ordinally scaled. The research occurred at the Sidomulyo Health Center in the Tampan District of Pekanbaru City, from September 2022 to March 2023.

The research focused on stroke patients residing within the jurisdiction of the Sidomulyo Health Center, situated in the Tuah Madani District of Pekanbaru City. The study population comprised all individuals who had experienced stroke in the area, with a sample size of 41 respondents selected randomly. Data collection involved two approaches: primary data collection, which involved administering questionnaires to respondents within the health center's vicinity, and secondary data collection, which encompassed reviewing literature and gathering documentation from the health center.

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The collected data is then processed through several steps, including editing to check the completeness of the data, coding to code the answer results, and tabulating to facilitate data analysis in the form of frequency distribution tables. The instrument used in this study was a questionnaire, which included questions about age, sex, environmental conditions, disease vectors, personal hygiene, snack habit behavior, and health services.

Next, data analysis was performed using the Spearman Rank correlation test method, which corresponds to the characteristics of the data used, where one or more variables are not normally distributed. This analysis aims to determine the relationship between variables in the study. Thus, the research methods include data collection techniques, data processing, and statistical analysis relevant to the research objectives.

Results and Discussion

The Spearman Rank Correlation Test Method was used to analyze the relationship between variables. This method was chosen due to the characteristics of the data utilized in the study:

1. The direction of the relationship between variables can be positive and negative.
2. The data used must be an ordinal scale.
3. There is no term independent variable (X) nor bound variable (Y).
4. Non-parametric statistical data where one or more variable data are not normally distributed.

As for knowing whether the data is parametric or nonparametric, as follows:

Table 1. One-Sample Kolmogorov-Smirnov Test

N		41	41	41	41
Normal Parameters ^{a,b}	Mean	6.34	6.93	7.15	6.59
	Std. Deviation	.762	.848	1.740	.894
Most Differences	Absolute	.318	.253	.190	.313
	Positive	.194	.253	.190	.224
	Negative	-.318	-.214	-.182	-.313
Test Statistic		.318	.253	.190	.313
Asymp. Sig. (2-tailed)		.000 ^c	.000 ^c	.001 ^c	.000 ^c

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

The provided data indicates that the data for the four variables are not normally distributed. Specifically, the variables for smoking habits, drinking habits, and stroke exhibit non-normal distribution, as evidenced by the significance value (Sig) of 0.000, which is less than the threshold of 0.05. Similarly, the data for the lack of activity variable demonstrates a

non-normal distribution, with a significance value of 0.001. These findings are the basis for employing the Spearman Rank Correlation Test Method to analyze the relationship between these variables. Subsequently, the next step involves conducting the Spearman Rank Correlation Test to ascertain the relationships between the four variables, as presented in the table below.

Table 2. Correlations

			Smoking Habits	Drinking Alcohol	Lack of Activity	Stroke
Spearman's pulled up	Smoking Habits	Correlation Coefficient	1.000	.201	.158	.415**
		Sig. (2-tailed)	.	.209	.323	.007
		N	41	41	41	41
Drinking Alcohol	Drinking Alcohol	Correlation Coefficient	.201	1.000	-.020	.373*
		Sig. (2-tailed)	.209	.	.900	.016
		N	41	41	41	41
Lack of Activity	Lack of Activity	Correlation Coefficient	.158	-.020	1.000	.122
		Sig. (2-tailed)	.323	.900	.	.446
		N	41	41	41	41
Stroke	Stroke	Correlation Coefficient	.415**	.373*	.122	1.000
		Sig. (2-tailed)	.007	.016	.446	.
		N	41	41	41	41

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

* . Correlation is significant at the 0.05 level (2-tailed).

The results of the table above need to be interpreted as correlation analysis as follows.

1. See the significance of relationships

a. Variable smoking habits with stroke

According to the output, the significance value (sig.) of 0.007 is less than the threshold of 0.05, indicating a significant relationship between smoking habits and stroke.

b. Variable drinking habits with stroke

With a significance value (sig.) of 0.016, which is below the threshold of 0.05, there exists a significant relationship between drinking alcohol habits and stroke.

c. Variable lack of activity there is a significant relationship with stroke

Based on the output, significance value, or sig. (2-tailed) of 0.446 > 0.05 means no significant relationship exists between lack of activity and stroke.

2. See the strength level of a relationship

a. Variable smoking habits with stroke

The obtained correlation coefficient is 0.415, indicating a moderate level of correlation between smoking habits and stroke. This suggests a significant relationship between the two variables.

b. Variable drinking habits with stroke

The output shows a correlation coefficient of 0.373, indicating a moderate correlation between drinking habits and stroke. This suggests a significant relationship between the two variables.

c. Variable lack of activity with stroke

Based on the output, a coefficient of 0.122 indicates a very weak correlation between the lack of physical activity variable and stroke.

3. See where your relationship is headed

a. Variable smoking habits with stroke

Based on the output, the positive value of 0.415 signifies a unidirectional relationship between the two variables. This implies that as smoking habits increase, the risk of stroke also increases.

b. Variable drinking habits with stroke

According to the output, the positive value of 0.373 indicates a unidirectional relationship between the two variables. This suggests that as the habit of drinking alcohol increases, the risk of stroke also increases.

c. Variable lack of activity with stroke

Based on the output, the positive value of 0.122 suggests a unidirectional relationship between the two variables. This implies that as the lack of physical activity increases, the risk of stroke also increases.

The conclusion is that smoking and drinking alcohol have a significant relationship with stroke risk. The relationship has a sufficient correlation with the direction the relationship is unidirectional. The higher the habit of smoking and drinking alcohol will cause an increased risk of stroke to our body. As indicated by Novida Rizky in 2011, the analysis revealed a noteworthy correlation between gender and the understanding of stroke risk factors ($p = 0.020$), as well as between educational level and the identification of early stroke symptoms ($p = 0.006$; $r = 0.229$). Similarly, according to Wayunah, in 2008, there was a significant link observed between hypertension ($p = 0.035$) and physical activity ($p = 0.011$) with the type of stroke. Notably, physical activity emerged as the most influential risk factor associated with this specific type of stroke, with an odds ratio (OR) of 5.8.

Discussion

The Spearman Rank Correlation Test Method results demonstrate a notable association between smoking and drinking habits and the likelihood of experiencing a stroke. Specifically, the correlation coefficients of 0.415 and 0.373, respectively, indicate a moderate

correlation between these behaviors and the risk of stroke. These findings align with previous research, which has consistently linked smoking and heavy drinking to an elevated risk of stroke. It is essential to note the direction of these relationships. The positive correlation coefficients imply that as smoking and drinking habits increase, so does the risk of stroke. This suggests a one-way relationship where these habits contribute to stroke risk rather than stroke directly influencing them.

Conversely, the correlation coefficient of 0.122 between lack of physical activity and stroke risk is minimal, indicating no significant relationship between these factors. This finding aligns with prior studies that have identified physical activity as a protective factor against stroke. Overall, these results affirm the significance of smoking and drinking habits as substantial risk factors for stroke. They highlight the urgency of public health interventions aimed at reducing smoking and heavy drinking, particularly among populations vulnerable to stroke. Moreover, these findings align with existing research on stroke risk factors, reinforcing the importance of considering smoking and heavy drinking in stroke prevention and management efforts. To conclude, this study underscores the substantial link between smoking and drinking habits and stroke risk, emphasizing the need to address these behaviors in stroke prevention strategies, especially for high-risk populations.

Conclusion

Based on the findings of the conducted research, it can be inferred that there is a notable association between smoking, alcohol consumption, and the risk of stroke. This relationship demonstrates a moderate correlation, and its direction is unidirectional. Increased smoking and alcohol consumption habits are linked to a heightened risk of stroke occurrence. To prevent strokes, it is imperative to enhance education through campaigns and counseling aimed at controlling primary risk factors such as hypertension, as well as preventing other degenerative diseases like coronary heart disease and diabetes mellitus. These preventive efforts should be disseminated through various mass media platforms.

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