

Factors Related about Family Delay Bring Stroke Patient to Emergency Departments of Labuha Hospital

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Abstract

The late arrival of stroke patients to the hospital is still a problem that still occurs in hospitals in several regions in Indonesia. Delay in treatment of stroke patients causes permanent disability and death. The time it takes for stroke patients is less than 3 hours to get thrombolytic therapy, which is started when an attack occurs. Where, the effectiveness of therapy is determined by the time the patient arrives at the hospital. Patient arrival to the hospital affects patient outcomes. Purpose: to analyze the factors associated with family delays in bringing stroke patients to the ER at Labuha Hospital. This study used an observational analytic study design with a cross sectional design approach. The research location is in the Emergency Room of the Labuha Hospital. Research time was September-November, 2020. The sampling technique used nonprobability sampling with purposive sampling technique totaling 42 stroke patients. The measuring instrument used is a questionnaire. Based on the Spearman test, it shows the relationship between the factors of knowledge ($p = 0.01$), awareness ($p = 0.03$), decision making ($p = 0.00$), economy ($p = 0.00$) and behavior ($p = 0.00$) with family delays in bringing stroke patients to the ER at Labuha Hospital. The multiple linear regression test shows that awareness is the most dominant factor associated with family delay with the coefficient value $\beta -11.051$ compared to other factors. The time delay of stroke patients decreased when knowledge, awareness, decision making, economy and family behavior were good.

Keywords: Knowledge, Awareness, Decision Making, Economy, Behavior, Family Delay in Carrying Stroke Patients.



A. INTRODUCTION

Stroke is the second leading cause of death in the world after heart disease, namely 11.8%. Death due to stroke occurs in 1 person every 6 seconds in the world. There are 15 million people in the world who have had a stroke, 5 million of them died and 5 million have disabilities (Kumar et al., 2015). In the United States stroke is the fifth leading cause of death after heart disease, cancer, respiratory disease, and trauma. Of the 2,626,418 total deaths in the United States, 133,103 were caused by stroke (Howard, 2018).

In Southeast Asia as many as 4.4 million people have suffered a stroke (WHO, 2010). In 2020 it is estimated that 7.6 million people will die from stroke (Misbach, 2010). In Indonesia, stroke has increased, in 2007 it was 8.3 per 1000, and in 2013 it increased to 12.1 per 1000 (Putri, Islam, & Subadi, 2018). Based on data from Riskesdas (2018), the prevalence of stroke in Indonesia increased from 7% in 2013 to

10.9% in 2018 or an estimated 2,120,362 people, nationally North Maluku has a stroke prevalence of 4.6%.

Disabilities (DALYs) due to stroke in 2007 were 2,337,718 people, causing stroke survivors to lose their productive time which is predicted to increase to 32.5% in 2020 (Suryati, 2013). The increasing number of sufferers, disabilities and deaths due to stroke shows that stroke is a disease that should get more attention from various parties. The impact of stroke is very large, namely death and even disability experienced by sufferers and their families. Disabilities experienced by sufferers will be in the form of loss of productive time, independence, identity, social life and quality of life which can affect the patient's psychology, causing stress and depression (Rachmawati, 2016; Bray, 2011). The impact on the patient's family is the occurrence of family economic disruption due to the high cost of prolonged care (Jacobson et al., 2015). In addition, stroke can cause emotional burdens on the family which can have an effect on the quality of patient care at home (Chen et al., 2019).

Rapid relief is an effective effort in stroke intervention, especially in acute ischemic stroke which is closely related to disability and has an incidence prevalence 10 times higher than hemorrhagic stroke (Duque et al., 2015). The golden period of stroke patients is 3 hours after the attack occurred (Lees et al., 2010). Early intervention for acute ischemic stroke is effective when given within 3-4.5 hours after the attack. The effectiveness of the intervention will decrease if there is a delay in early stroke aid (Fassbender et al., 2013; Fonarow et al., 2011). Delay in stroke action in a matter of minutes results in loss of function \pm 1.9 million neurons or brain cells and 14 billion synapses (Taylor et al., 2014), continuous brain ischemia for $>$ 6 hours after the attack without treatment causes permanent neurological damage which impact on disability (Rachmawati, 2016).

Most of the acute ischemic stroke patients came late to the emergency department (Rachmawati, 2016). Research by Kim et al., (2016) states that most patients with acute ischemic stroke come to the stroke center within 4 hours after the attack. It is reinforced by Rachmawati's (2016) research which states that 20 patients with acute ischemic stroke, 26% of whom came to the emergency department more than 6 hours after the start of the attack, 40% of patients came to the emergency room more than 24 hours after the start of the attack, and 20% of patients present \leq 3 hours after the onset of the attack. Patient delay is a major factor in getting immediate help (Yang et al., 2014).

Delay in action in stroke patients with mild symptoms can result in disability and even death. Optimal handling at the initial time after a stroke will reduce the disability rate by 30% (Prasetyo, 2017). Delay in handling stroke patients within one minute can result in damage to neuron function of \pm 1.9 neurons and 14 billion synapses. So that it can cause disability and even death (Fassbender et al., 2013).

A preliminary study conducted by researchers at Labuha Hospital found that during March-April 2020 there were 43 stroke patients who came to the ER. When researchers conducted a preliminary study researchers found one hemorrhagic stroke patient who was brought by the family to the ER with an estimated time delay

of > 7 hours, after one day of treatment the patient was pronounced dead in the intensive care room (ICU). Based on the description and the preliminary study, the researcher wanted to examine the analysis of what factors were associated with family delays in bringing stroke patients to Labuha Hospital. This study aims to analyze the factors associated with family delays in bringing stroke patients to the ER at Labuha Hospital.

B. METHOD

This study used an observational analytic study design with a cross sectional design approach. The research location is in the Emergency Room of the Labuha Hospital. Research time was September - November, 2020. The sampling technique used nonprobability sampling with purposive sampling technique totaling 42 stroke patients. The measuring instrument used was a modified questionnaire from several questionnaires. Univariate analysis using frequency distribution, median and minimum-maximum value. Analysis using the Spearman test. Multivariate analysis used multiple linear regression analysis. This research was conducted after obtaining ethical approval from the ethics commission No: 151/UN18.F7/ETIK/2020.

C. RESULT AND DISCUSSION

Characteristics of respondents based on gender, education and family status can be seen in table 1 below:

Table 1 Characteristic of Respondents Based on Gender, Education and Family Status

No	Respondents Characteristics	Frequency (n)	Percentage (%)
1	Gender		
	Male	18	43
	Woman	24	57
	Total	42	100
2	Education		
	Primary school	7	17
	Junior high school	9	21
	Senior high school	24	57
	Bachelor	2	5
	Total	42	100
3	Status in family		
	Husband	13	31
	Wife	10	24
	Biological children	17	40
	Children in law	2	5
	Total	42	100

Source: Primary Data, 2020

Table 1 shows that most of the respondents were female, with the number of female respondents (57%) compared to male respondents (43%). Most of the respondents' education level is SMA (57%), and S1 is the lowest education level of the respondents (5%). The status in the family shows that most respondents are biological children (40%), husbands (31%) and wives (24%).

Tabel 2 Characteristics of Respondents by Age

No	Characteristics Respondents	N	Mean±SD	Min-Max
1	Age	42	41,17±10,9	24-61

Source: Primary Data, 2020

Table 2 shows that the average age of the respondents is 41 years, with the lowest age being 24 years and the highest being 61 years.

Table 3 The Relationship between Knowledge and Family Delay in Bringing Stroke Patients to the ER at Labuha Hospital

	Delay
Knowledge	r = -0.375 p = 0.01 n = 42

Source: Primary Data, 2020

Based on the test results in table 3, testing the relationship between knowledge and delay produces a correlation coefficient of -0.375 with a p value of 0.01, which means that the p value < alpha, so that H0 is accepted. It can be concluded that there is a positive but very weak relationship between family knowledge and tardiness, or good knowledge, the lower the family delay time.

Table 4 Relationship of Awareness with Family Delay in Bringing Stroke Patients to the ER at Labuha Hospital

	Delay
Awareness	r = -0.334 p = 0.03 n = 42

Source: Primary Data, 2020

Based on table 4, it shows a correlation value of -0.334 and a p value of 0.03 means that p value < 0.05, from these results it can be said that H0 is accepted, or between family awareness and tardiness has a positive but very weak relationship, so it is concluded that the better awareness, the lower the time for family delays in bringing stroke patients to the emergency department.

Table 5 The Relationship between Decision Making and Family Delay in Bringing Stroke Patients to the ER at Labuha Hospital

	Delays
Decision Making	r = -0.816 p = 0.00 n = 42

Source: Primary Data, 2020

The bivariate test results in table 5 show a p value <0.05 with a correlation coefficient of 0-0.375 indicating that there is a significant relationship between decision making and family delay, meaning that the better the decision making, the lower the delay time.

Table 6 Economic Relationship with Family Delay in Bringing Stroke Patients to the ER at Labuha Hospital

	Delay
Economic	r = -0.452 p = 0.00 n = 42

Source: Primary Data, 2020

The results of table 5.2.4 show that the correlation coefficient is -0.452 with a p value < 0.05, so it is said that H0 is accepted, meaning that there is a significant relationship between economy and family delay. The resulting relationship is positive but very weak. It can be concluded that the better the economy, the lower the delay time for patients to the emergency department.

Table 7 The Relationship between Behavior and Family Delay in Bringing Stroke Patients to the ER at Labuha Hospital

	Delay
Behavior	r = -0.549 p = 0.00 n = 42

Source: Primary Data, 2020

From the table above it can be concluded that the correlation coefficient between behavior and tardiness is -0.375 with a p value of 0.00 (<0.05), so it can be said that H0 is accepted or there is a significant relationship between the two variables, which means the better the behavior, the time. Tardiness has also decreased.

Table 8 The Results of the Analysis of the Relationship between Knowledge, Awareness, Decision Making, Economy, and Behavior with Family Delays in Bringing Stroke Patients to the ER at Labuha Hospital

Variable	N	B	t value	p value
Knowledge	42	-0.670	-2.479	0.01
Awareness	42	-11.051	-5.673	0.00
Decision Making	42	-3.631	-4.039	0.00
Economic	42	-6.137	-2.703	0.01
Behavior	42	-4.465	2.631	0.01

Source: Primary Data, 2020

From the results of table 5.3.1 shows the coefficient value in the multiple linear regression equation, where the value used is the B value and the constant value (99.718), resulting in the following equation: $Y' = 99.718 - 0.670X_1 - 11.051X_2 - 3.631X_3 - 6.137X_4 - 4.465X_5$. The results of multiple linear regression analysis show that the variables of knowledge (X1), awareness (X2), decision making (X3), economy (X4) and behavior (X5) have a linear relationship with family delay (Y). Where the awareness variable is the most dominant variable related to family delays, has a correlation value of -5.673.

Knowledge Relationship with Family Delays in Bringing Stroke Patients to the ER at Labuha Hospital

The results of this study indicate that family knowledge about the definition, risk factors and signs of stroke symptoms has a significant relationship with family delays in bringing patients to the ER at Labuha Hospital. The results of this study are in line with the research of Ashraf et al (2015) which states that a good level of knowledge about the risk factors and signs of stroke symptoms can reduce the time to delay the patient's arrival to the hospital. In addition, according to the findings of Rachmawati (2017) that families who have less knowledge of risk factors and signs of stroke symptoms make the family not immediately bring patients to the emergency department, this is what causes delays in patient arrival to the emergency department.

Knowledge of the initial signs related to the actions taken, families who have good knowledge of stroke symptoms immediately call for an ambulance as an action to speed up access to the hospital (Lundelin et al., 2012). There is a study that has different results from this study, namely, according to Yanagida et al., (2014) that delays occur more in patients or families who recognize the initial symptoms of stroke, because patients know that stroke is a critical illness so that it requires intensive care for in the hospital. Patient and family education is a very important factor in encouraging earlier visits to hospital. Until recently, there was controversy about whether knowledge of signs actually helped patients get to the hospital earlier. In a study, Fussman et al., (2010) stated that in several research reports, they did not find a significant relationship between knowledge of stroke symptoms and

the use of emergency medical services (EMS). These results are in line with the study of Yanagida et al., (2014) that knowledge about stroke symptoms does not reduce pre-hospital delays.

Limited knowledge about the golden period of stroke treatment is one of the causes of delay, so that education to the wider community about stroke that focuses on the importance of early arrival has the potential to improve better treatment outcomes. Knowledge of early symptoms and the golden period in stroke patients in an emergency department in one of the largest cities in the United States results in about two-thirds of patients reporting knowledge of early stroke symptoms, and few know the importance of early arrival to hospital (Panicio et al. al., 2014). Lack of knowledge of the early signs of stroke slows hospital arrival, in this case it can affect their final prognosis, namely permanent disability and death (Camara et al., 2020).

The Relationship between Awareness and Family Delay in Bringing Stroke Patients to the ER at Labuha Hospital

In this study, there was a significant relationship between awareness and family delays in bringing stroke patients to the ER at Labuha Hospital, as many as 42.8% of respondents who were late in bringing patients to the emergency department had low awareness, namely < 2.12 (mean). The results of this study are in line with Seo Kim et al., (2011) who stated that family awareness regarding stroke as an emergency disease can reduce delays in patients to the hospital to receive thrombolysis therapy. Awareness about stroke symptoms is the most important factor in early arrival so that public awareness of stroke must be increased by conducting surveys and evaluations continuously

The results of the study by Wongwiangjunt et al., (2011) stated that as many as 34.6% of families who realized and recognized the initial symptoms of stroke took the patient to the hospital within 4.5 hours. According to Hickey et al., (2011), it is stated that poor awareness of the early signs of stroke tends to be a factor that causes patients to delay getting medical help immediately. Education can substantially increase public awareness about early signs and the appropriate response to a stroke. Raising public awareness is important. The more people are aware that stroke is an emergency disease, so it is important to seek medical attention quickly when a stroke occurs, so it can reduce the time to delay the patient's arrival to the hospital. This affects the effectiveness of thrombolytic therapy and patient outcomes.

Increasing family awareness is carried out specifically on symptom recognition and understanding that stroke is an emergency disease, so it requires a quick response by contacting EMS. Wilhelm et al., (2019) stated that increasing family recognition of the initial symptoms of stroke can use the Fast Arm Speech Test (FAST), but this is different from the results of the study by Bray et al., (2011) showing that even though the family knows the initial symptoms of using it FAST, but not applied when a stroke occurs, this shows that the focus of increasing family awareness to contact EMS when an attack occurs is the main principle, besides that education related to stroke as a treatable emergency disease also needs to be done.

The Relationship of Decision Making with Family Delays in Bringing Stroke Patients to the ER at Labuha Hospital

The results of this study indicate that there is a relationship between decision making and family delays in bringing stroke patients to the ER at Labuha Hospital. This result is in line with the research of Mellor et al., (2015) which states that the role of the family in the decision-making process when an attack occurs affects the delay in patient arrival to the hospital, namely the family's decision to choose transportation and what to do when an attack occurs has the potential to delay treatment on time. The results of the study by Faiz et al., (2014) also stated that delay in decisions is a major obstacle to treatment and reduces the effectiveness of intravenous thrombolytic therapy. In this study it was also concluded that knowledge about stroke did not reduce delays in making decisions.

In this study, there is one factor that might slow down the decision, namely the local community belief that the initial symptoms of stroke are often manifested not as a disease but witchcraft, so that the family does not immediately bring the patient to the hospital. In addition, decision making is also influenced by who decides, this is related to the knowledge, experience and education they have. In a study conducted by Rahmawan, Yueniwati & Suharsono (2020), it is stated that there is no relationship between decision making and the time interval for taking the patient to the hospital, but there is a time difference, if the person taking the decision is a child it will take longer than the husband or wife. The nuclear family has a very important position and role in deciding what to do when a family member is sick. Based on the results of research by Kosasih et al., (2020) that the age factor also influences decision making, because age is related to a person's mental and experience, so the older the decision maker is, the better the response to bringing patients to the hospital.

Economic Relationship with Family Delay in Bringing Stroke Patients to the ER at Labuha Hospital

The results of this study indicate that there is a relationship between economy and family delays in bringing stroke patients to the ER at Labuha Hospital. These results are in line with research conducted by Prasetyo (2017) which found that more patients were taken to government hospitals than to private hospitals, even though the distance between residences and government hospitals was further. This is of course the cause of the patient being late.

Poverty is still a big problem for the health sector, because people's affordability to health services is related to the purchasing power of the economy (Depkes RI, 2009). Research conducted by Prasetyo (2017) also explains that 65% of patients prefer government hospitals as the health service used, 28.2% choose primary health services and 6.4% choose medical practice services. This relates to insurance, where in this study it was found that in addition to BPJS there was also JKN, and health insurance made by the government of South Halmahera for low-economic class people.

The Relationship between Behavior and Family Delays in Bringing Stroke Patients to the ER at Labuha Hospital

The results of this study indicate that behavior has a significant relationship with family delays in bringing patients to the Labuha Hospital emergency department. This result is in line with the research of Waelverakup et al., (2019) which states that family members are the most important people in finding the right help, so that families must be able to help patients minimize delays to the hospital which can affect the level of brain damage. This is in line with the study by Kim et al., (2011) that the behavior of contacting an ambulance service or EMS (119) quickly reduces the delay in patient arrival to the emergency department.

According to Hariyanti (2015), there are three lines of family behavior in seeking health help, namely bringing patients directly to the hospital when the initial attack occurs, bringing them to the independent practice of health workers or to traditional medicine and not taking patients to the hospital. These three lines are influenced by geographic, demographic, clinical, local culture, knowledge and family perceptions.

Family behavior in seeking health services for patients does not only focus on medical health services, but non-medically such as traditional medicine, seeing a psychic or traditional healer is a factor related to the delay in bringing the patient to the hospital (Yuliana, 2013). The effectiveness of stroke treatment is better if it is given at the initial time after the first attack (Dharma, 2018). The behavior of families who quickly seek health help when an attack occurs affects the success of the intervention given (Ratnawardani, Utomo and Safri, 2018).

Education is an effort to change behavior, including healthy behavior in preventing stroke and delaying time to hospital. The function of education is so that families are able to show good behavior by making the right decisions regarding the care of sick family members. Education can change the perception of families who previously brought stroke patients to traditional medicine which is one of the causes of late arrival of patients at the hospital (Rahmina, 2017).

The Most Dominant Factor was Related to Family Delay in Bringing Stroke Patients to the ER at Labuha Hospital

The results of the multivariate test in this study showed that the most dominant factor associated with family delays in bringing stroke patients to the emergency department is awareness because it has a coefficient value of β -11.051. This result is in line with the study of Yang et al., (2014) which states that the delay in the arrival of acute ischemic stroke patients to the emergency room is influenced by the lack of awareness of the symptoms of stroke, denying the symptoms that are felt to be strokes and letting them hope that these symptoms can disappear without intervention. The situation is different if the family realizes and has an understanding of what to do so that it accelerates the introduction of a stroke and immediately asks for medical help by immediately taking the patient to an emergency department (Duque et al., 2015). The role of the family at the start of a

stroke is very influential on the late arrival of patients at the hospital (Hariyanti, Harsono & Prabandari, 2015).

Lack of awareness is an important factor affecting the time of initial arrival to the emergency department for thrombolytic therapy (Das et al., 2010). In addition to increasing family knowledge about stroke in order to produce healthy lifestyle behaviors, family awareness also needs to be increased, because the stroke death rate in the world continues to increase. According to the World Health Organization (2018), approximately 15 million people experience a stroke every year, five million sufferers experience death and five million experience permanent disabilities. Therefore prevention such as health promotion related to stroke either directly or through social media is a good alternative to raise awareness of the family or the general public, good awareness makes families or communities able to bring patients to the hospital earlier (Pothiban, Khampolsiri & Srirat, 2018).

D. CONCLUSION

There is a relationship between factors of knowledge, awareness, decision making, economy and behavior with family delays in bringing patients to the IGD Labuha Hospital. Awareness is the most dominant factor in relation to family tardiness. Further research is needed to dig deeper into the factors associated with family delays in bringing patients to the emergency department. Socialization is needed about the early symptoms and golden period of stroke to the wider community. Nurses can act as educators in health services to provide education to stroke patients so that when a family attack occurs they can immediately take them to the hospital.

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