The Effect of Educational Media Booklet on Family Knowledge About Early Stroke Detection

Intan Putri1, Siti Romadoni2, Imardiani3, Vira Suci Yunesi4
1Program Studi Ilmu Keperawatan IkesT Muhammadiyah Palembang
2Program Studi Ilmu Keperawatan IkesT Muhammadiyah Palembang
3Program Studi Ilmu Keperawatan IkesT Muhammadiyah Palembang
4Program Studi Ilmu Keperawatan IkesT Muhammadiyah Palembang
Email: inntanpuutyii07@gmail.com

ABSTRACT

Introduction: Stroke is a health problem that needs attention because stroke is the number one cause of death in the world (200 per 100,000 population in one year) and the highest cause of death in Indonesia (500,000 people with 125,000 deaths and the rest are disabled) caused by delays in stroke treatment in the prehospital phase (83.9%) due to lack of knowledge of the community, especially families about early detection of stroke. Steps that can be taken to increase knowledge are to conduct education using educational media, one of which is booklet media, namely media that can be used to convey information in the form of a book containing writing and pictures. Research Objectives: To determine the effect of booklet media education on family knowledge about early stroke detection. Method: This type of quantitative research uses Pre Experimental with the One Group Pre Test-Post Test approach. Sampling used a purposive sampling technique of 59 respondents, namely families with a high risk of stroke in the working area of the Nagaswidak Health Center. The study used an instrument of knowledge about early stroke detection as many as 20 questions that had been tested for validity and reliability tests at the Peminda Palembang Health Center. The data obtained were analyzed using the Wilcoxon test. Results: The results of the analysis on the knowledge variable obtained that the value of knowledge before education was a median of 11 with a minimum value of 0 and a maximum value of 18 and the value of knowledge after education was a median of 15 with a minimum value of 8 and a maximum value of 20. The results of data analysis with the Wilcoxon test obtained a p-value value of 0.000(<0.05). Discussion: There is an educational effect of booklet media on family knowledge about early stroke detection. Suggestions for future researchers to be able to carry out further research that focuses on the ability of families to carry out early detection of stroke with the demonstration method.

Keywords: Education, Media Booklet, Knowledge, Family, Stroke
INTRODUCTION

Stroke is a cerebrovascular disease characterized by impaired brain function due to damage or death of brain tissue caused by reduced or blocked blood and oxygen flow to the brain because the brain’s blood vessels experience narrowing, blockage, or bleeding (Despitasari, 2020). Stroke is divided into two types, namely ischemic stroke and hemorrhagic stroke. In developing countries like Asia, the incidence of ischemic stroke reaches 70% and hemorrhagic stroke is around 30% (Laily, 2017). Ischemic strokes are caused by thrombotic or embolic blockages as well as complications from several vascular diseases which are characterized by symptoms of a sudden drop in blood pressure, tachycardia, pallor, and irregular breathing, while hemorrhagic strokes are generally caused by intracranial bleeding with symptoms of increased blood pressure (systole). >200 mmHg in hypertonic and 180 mmHg in nonmotonic), bradycardia, purplish face, cyanosis, and snoring breathing (Saputra & Mardiono, 2022).

Stroke is characterized by sudden severe headache, limb weakness, loss of sensation in the face, asymmetrical lips, difficulty speaking or pelo (aphasia), loss of vision on one side or both eyes (Mustika et al., 2019). Stroke is caused by modifiable and modifiable risk factors. Risk factors that cannot be modified include heredity, age, and gender while risk factors that can be modified are hypertension, diabetes mellitus, smoking, obesity, and an unhealthy lifestyle (Laily, 2017).

Stroke is a health problem that needs attention because stroke is the number one cause of death in the world and the highest cause of death in Indonesia (Daulay et al., 2022). Stroke causes 6 deaths every 60 seconds and causes as many as 6.7 million deaths each year worldwide (Yessi et al., 2022). The incidence of stroke in the world reaches 200 per 100,000 population in one year. In Indonesia, it is estimated that as many as 500,000 people have had strokes, of which 125,000 or 25% have died, while the rest have mild and severe disabilities (Hanum et al., 2018). The incidence of stroke in South Sumatra based on data obtained from the South Sumatra Health Office shows that the prevalence of stroke in 2018 was 22,013 cases and in 2020 it has increased by 12%, reaching 25,215 cases of stroke (South Sumatra Provincial Health Office, 2020). In addition, stroke can also cause disability in sufferers in the form of paralysis of the limbs, impaired thought processes, speech disorders and memory disorders (Amelia et al., 2020).

Death and disability from stroke can be prevented by treating stroke quickly and appropriately. One of stroke treatment is prehospital treatment. Pre-hospital or pre-hospital treatment are actions or initial treatment that can be given to stroke patients both while still at home and actions before being referred to the hospital that can be carried out by the community, family or health workers (Setianingsih et al., 2019). Pre-hospital treatment consists of early detection, delivery to the hospital and activation of health services (dispatch) (Purnomo et al., 2022). The best pre-hospital treatment is during the golden hour, which is 3 hours since the first symptoms are recognized, the sooner medical assistance or treatment is carried out, the higher the success of the stroke treatment given (Muskananfola et al., 2021). Medical treatment that has just
been given more than 12 hours after a stroke has occurred has the risk of causing greater permanent disability (Mustika et al., 2019).

Delays in stroke treatment in Indonesia are still common, as many as 18.7% of patients arrive at the hospital less than 3 hours after onset, the rest arrive at the hospital within more than 3 hours and only 24.5% of patients arrive on time (Hakiki et al., 2021). About 83.9% of delays in stroke treatment at the hospital were caused by delays in the pre-hospital phase due to a lack of family knowledge about early stroke detection (Santosa & Trisnain, 2019). Knowledge about early stroke detection is knowledge in identifying stroke symptoms early to prevent delays in stroke treatment (Dulay et al., 2022). Delays in prehospital treatment due to a lack of family knowledge about early stroke detection can be minimized by conducting education to increase knowledge, so that families can carry out prehospital treatment quickly and precisely. Education for families as an application of the role of nurse educators can use a medium to support the success of education, one of the media that can be used is booklet media.

Booklet media is print media that is used to convey information in the form of a book containing writing and pictures. More booklets effectively used as an educational medium compared to other print media such as leaflets, this is because booklets are easier and more convenient to carry in pockets and less likely to be lost, but leaflets are likely to be damaged more quickly, making them unattractive to read or easily lost because they are often carried (Sukraniti et al., 2018). Booklets have several other advantages such as being able to convey messages in detail and being able to review more about the messages conveyed, presented in full, and can be stored longer (Ndapaoele et al., 2020). Booklets are effectively used as educational media for the community as evidenced by previous research, namely that there is an educational effect of the Cincinnati Prehospital Stroke Scale booklet media on the ability of health cadres in early detection of stroke in the prehospital environment with the results of the statistical pair t-test ($p = 0.000$) (Kustanti & Widyarani, 2022).

Early stroke detection is a method of early warning signs for high-risk communities that can be taught to patients and families who are the closest people to patients or individuals at high risk, as well as an effort to empower families to recognize signs and symptoms of stroke early in life. The scope of pre-hospital and family has a strategic position to be used as a health service unit because health problems in the family are interrelated and affect each other among family members. Early detection of stroke is needed as an effort to recognize the signs and symptoms of stroke in the prehospital environment because most of the 95% of first complaints of stroke occur at home or outside the hospital (Mustika et al., 2019). Quick, precise and accurate identification and detection in the prehospital environment, both performed by the patient and the patient's family have a positive effect on the success of therapy and treatment programs, conversely delays in treatment cause more extensive brain damage and also increase the risk of death (Dulay et al., 2022).

One of the early detection of strokes that can be taught to families is the Cincinnati Prehospital Stroke Scale (CPSS), which is a prehospital stroke
detection method for assessing facial paralysis (facial droop), arm weakness (arm drift) and speech disorders or difficulties (speech). carried out in less than one minute which has a sensitivity level of up to 81%. The Cincinnati Prehospital Stroke Scale method is appropriate and appropriate for use as an early detection of patients who have had a stroke in the prehospital environment and effectively accelerates the provision of interventions so as to minimize disability due to stroke (Kustanti & Widyarani, 2022). In addition, an early stroke detection method that can be taught to the public, especially communities with a high risk of stroke, is the Face, Arm, Speech Time (FAST) method, which is effective in accelerating the provision of interventions so as to minimize disability and death and can be campaigned, disseminated and trained to the public with methods and suitable and customized designs (Daulay et al., 2022).

The results of a preliminary study conducted on December 14, 2022 at the Nagaswidad Health Center, Seberang Ulu Dua District, Palembang City, obtained the results of interviews with 10 families who did not know about early stroke detection. Based on the description of this background, the formulation of the problem in this study was to find out whether there was an effect of educational media booklets on family knowledge about early stroke detection.

**MATERIALS AND METHODS**

pre-experimental approach with a one group pre-test and post-test design. The population in this study were all families in the working area of the Nagaswidad Health Center in Palembang City and the total sample was 59 respondents. Sampling using non-probability with purposive sampling technique. This study consisted of independent variables, namely educational media booklets and the dependent variable, namely family knowledge about early stroke detection. This research was conducted using booklet media on early stroke detection which was carried out in the working area of the Nagaswidad Health Center in Palembang City in March 2023. The instrument used in this study was a knowledge questionnaire about early stroke detection which consisted of 20 questions.

This research was carried out in several stages, namely obtaining a research permit by bringing a letter from the Palembang Muhammadiyah Institute of Health Sciences and Technology which was submitted to the National Unity and Politics Agency and then submitted to the Palembang Health Service which was addressed to the Nagaswidad Health Center in Palembang City. Then the researcher explained the procedure and research objectives entitled The effect of booklet media education on family knowledge about early stroke detection to the head of the Nagaswidad Health Center. After that the researchers coordinated with the Nagaswidad Health Center in Palembang City to collect data on families with high risk stroke sufferers. Next, the researcher explained the research procedure entitled The effect of educational media booklets on family knowledge about early stroke detection to respondents. Then the researchers share Informed Consent to be signed by respondents who are willing to participate in education. After that the researcher took the initial pre-test data, namely
respondents were asked to answer the question items listed on the questionnaire aiming to find out the family's knowledge about early stroke detection before being given an intervention. You are given 30 minutes to answer the pre-test. Furthermore, respondents were given a media booklet about early stroke detection to read for 20 minutes. After the respondent finished reading the booklet, the researcher then took the final data, namely a post-test was carried out on the respondent by asking him again to answer the question items listed on the questionnaire. This post-test aims to find out how the family's knowledge about early stroke detection after carrying out booklet media education. To answer the post-test given 30 minutes. Furthermore, the researcher collected the questionnaire sheets that had been filled in by the respondents and checked their completeness. After providing booklet media education, it is hoped that there will be an increase in family knowledge about early stroke detection. Researchers perform data processing and data analysis from the beginning to the end of the respondents.

Data analysis uses SPSS to produce univariate and bivariate values. The data obtained was tested for normality using the Kolmogorov-Smirnov test with the results of the normality test the data were not normally distributed so that further data analysis was carried out using an alternative non-parametric test, namely the Wilcoxon test.

RESULTS
1. Univariate analysis
   a. Family Knowledge Before Education Media Booklet

<table>
<thead>
<tr>
<th>Variable</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>pre-test</td>
<td>11</td>
<td>0</td>
<td>18</td>
</tr>
</tbody>
</table>

Source: primary data (2023)

Based on table 1, it was found that the value of family knowledge before the booklet media education was carried out was 11 with a minimum value of 0 and a maximum value of 18.

b. Family Knowledge After Education Media Booklet

<table>
<thead>
<tr>
<th>Variable</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>post-test</td>
<td>15</td>
<td>8</td>
<td>20</td>
</tr>
</tbody>
</table>

Source: primary data (2023)

Based on table 2 it was found that the value of family knowledge after the booklet media education was carried out was 15 with a minimum value of 8 and a maximum value of 20.

2. Bivariate analysis
   a. The effect of booklet media education on family knowledge about early stroke detection

<table>
<thead>
<tr>
<th>Variable</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
<th>z value</th>
<th>P values</th>
</tr>
</thead>
<tbody>
<tr>
<td>pre-test</td>
<td>11</td>
<td>0</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>post-test</td>
<td>15</td>
<td>8</td>
<td>20</td>
<td>6.796</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Wilcoxon test (2023)
Based on table 3 above, the results of bivariate analysis using the Wilcoxon test obtained a z value of -6.706 and a p-value of 0.000 (<0.05) which indicates that there is an effect of media booklet education on family knowledge about early stroke detection.

**DISCUSSION**

**The Effect of Booklet Media Education on Family Knowledge About Early Stroke Detection**

Wilcoxon test, a p-value of 0.000 (<0.05) was obtained which showed that there was an effect of media booklet education on family knowledge about early stroke detection with the value of family knowledge before media booklet education was median 11 and after media booklet education was median 15. Education about early detection of stroke in this study was delivered using a media booklet which contains the definition of stroke, stroke complications, stroke stroke management. Booklet learning media is a group of print technology media in the form of a small book that has at least five pages but no more than forty-eight pages excluding the cover count. The booklet contains important information that is clear, firm, easy to understand and attractive, accompanied by pictures. The small form of the booklet makes it easy to carry anywhere with informative properties, an attractive design that can generate curiosity, so that individuals can easily understand what is conveyed in the learning process (Prasipatutri, 2016).

Early detection of stroke is a quick recognition of the signs and symptoms of a stroke. Some of the signs and symptoms that lead to the diagnosis of stroke are hemiparesis, sensory disturbance on one side of the body, hemianopia or sudden blindness, vertigo, aphasia, dysphasia, dysarthria, ataxia, and decreased consciousness which all appear suddenly. Knowledge about early detection of stroke is very important because it can help prevent the risk of a major disabling stroke or death. Lack of knowledge and ability to identify signs and symptoms of stroke early can lead to delays in treating stroke attacks. Several ways of early detection of stroke that are easy to apply in the community are the Cincinnati Prehospital Stroke Scale (CPSS) and the FAST (face, arm, speech, time) method, namely early detection of symptoms of facial muscle disorders, speech disorders, and limb weakness. (Kustanti & Widyarani, 2022; (Dulay et al., 2022).

Booklet media can increase one's knowledge because booklet media can make it easier for readers to understand the information presented and can improve memory and understanding of readers because the information presented is in visual and text form where 75% of the information processed by the human brain comes from information in the form of visuals (Noh et al., 2017).

The results of this study are supported by previous research conducted by (Bagaray et al., 2016) states that booklet media is effectively used to increase knowledge with the results of the study showing a p=0.025 value for DHE using booklet media, this is because the use of booklet media as a tool in giving DHE to children will make it easier for educational targets to understand the information conveyed compared to the delivery of information is only orally, because the target of education can directly observe the
pictures and writing which are explanations of the pictures in the media.

In line with research (Heri et al., 2019) which states that booklets are very effective in increasing knowledge and can be a source of information that can be used as an educational medium as evidenced by the results of the Wilcoxon test, a \( p\)-value = 0.0001 is obtained, this is because Booklets are a simple and economical form of education regarding the costs required and can increase the knowledge of respondents.

Other research conducted by (Saragih & Andayani, 2022) also states that providing health promotion with booklet media can increase students' knowledge of sedentary behavior as evidenced by the Wilcoxon test results obtained \( p\)-value = 0.002, this occurs because of the stimulation given through booklet media about sedentary behavior because booklet media is media with a simple structure, has an attractive appearance that contains writing and pictures, and can be presented in hardcopy (printed results) and softcopy (electronic media) so that it can make it easier for respondents to obtain information in short time. The increase in respondents' knowledge after being given health promotion using booklet media was also due to the fact that each student was also distributed booklet media so that they could be studied again after health promotion.

The increase in respondents' knowledge during \textit{the post test} can be caused by several other factors such as experience, level of education, and information. Experience is one of the factors that influence a person's level of knowledge, the more experience one gets, the better knowledge one has (Mustika et al., 2019). Experience is direct observation or participation in events as basic knowledge and plays a role in enriching existing knowledge. Research conducted by (Jessyca & Sasmita, 2021) states that experience affects a person's level of knowledge as evidenced by the results of \textit{the Chi-Square test} \( p\)-value 0.003

Someone who treats stroke patients has good knowledge about risk factors and signs and symptoms of stroke.

Education greatly influences the knowledge possessed by a person, a good education will support the development of self-potential and the knowledge needed to improve the degree of self-health and that of the family. According to the theory put forward by Notoatmodjo that knowledge is very closely related to education so it is hoped that someone with higher education will have wider knowledge (Listichomah & Andika, 2022). Information can also affect the level of knowledge. Information is a collection of messages that produce something that can be understood and provide benefits for the recipient. Information can be obtained from formal and non-formal education. Sources of information can be in the form of print media or electronic media, such as television, radio, computers, newspapers, books and magazines. Someone who can easily access information will gain knowledge more quickly (Badri et al., 2020).

Based on the results of the research and existing theory, the researcher assumes that there is an educational effect of booklet media on family knowledge about early stroke detection because booklets have proven to be effectively used in health education to increase knowledge with several advantages, namely having an attractive appearance accompanied by pictures, containing useful information.
clear and easy to understand, and can improve the reader's memory and understanding because the information is presented in visual and text form.

CONCLUSIONS AND SUGGESTIONS

Conclusion
Based on the results of research on the effect of booklet media education on family knowledge about early stroke detection in the working area of the Nagaswidak Health Center in Palembang, it can be concluded that
1. The value of family knowledge about early stroke detection before being given media booklet education is a median of 11.
2. The value of family knowledge about early detection of stroke after being given booklet media education is a median of 15
3. There is an educational effect of booklet media on family knowledge about early stroke detection as evidenced by the results of bivariate analysis using the Wilcoxon test, which obtained a p-value of 0.000 (<0.05).

Suggestion
1. For Respondents
   This research is expected to add insight to respondents about early detection of stroke in the prehospital environment so that they can carry out stroke treatment quickly, precisely and accurately and can reduce delays in stroke treatment due to lack of knowledge about early detection of stroke.

2. For Educational Institutions
   The results of this study are expected to be useful as an additional reference source to improve knowledge about early detection of stroke in the prehospital environment.

3. For Further Researchers
   It is hoped that future researchers who will conduct research on early detection of stroke in the prehospital environment will be able to carry out further research that focuses on the ability of families to carry out early detection of stroke using the FAST or CPSS methods which are carried out by means of demonstrations.

4. For health centers
   The results of this study are expected to be useful for the Nagaswidak Health Center in Palembang in conducting health education about early stroke detection and the media booklet in this study can become an instrument or media for conducting health education to the community.

FUNDING
This research did not receive financial assistance from any party.

CONFLICT OF INTEREST
In this study, no potential conflict of interest was reported by the authors.

THANK-YOU NOTE
Researchers would like to thank the leadership of the Institute of Health Sciences and Technology Muhammadiyah Palembang. Head of the Nagaswidak Health Center in Palembang City. Supervisors and examiners and all
parties who support the success of this research.

LITERATURE


Bagaray, FEK, Wowor, VNS, & Mintjelungan, CN (2016). Differences in the effectiveness of DHE with booklet media and flip chart media on increasing dental and oral health knowledge of SDN 126 Manado students . 4 (2).

Dahlan, MS (2016) Sample Size in Medical and Health Research . Jakarta: Indonesian Epidemiology


Heri, Linda, S., Selviana, & Mawardi. (2019). Booklet Media as a Media for Health Promotion Increasing Knowledge and Self Efficacy of Parents Providing Adolescent Sexual Education . 6 (3), 79–83.
