CRITICAL MEDICAL AND SURGICAL NURSING JOURNAL
Vol. 10, No. 1, April 2021
Journal Homepage: https://e-journal.unair.ac.id/CMSNJ

The Effect of Pre-Hospital Stroke Life Support Education on Family Knowledge and Self-Efficacy with Stroke Risk Patients

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ARTICLE HISTORY
Received: March 06, 2021
Accepted: May 19, 2021
Published: IN PRESS

KEYWORDS
knowledge; pre-hospital stroke life support; self-efficacy

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ABSTRACT

Introduction: Knowledge and self-efficacy are some of the factors in providing pre-hospital stroke life support so that it is expected to reduce mortality and morbidity due to stroke in Indonesia. The purpose of this study was to determine the effect of pre-hospital stroke life support education on the knowledge and self-efficacy of families with stroke risk patients.

Methods: The study design used a pre-experiment (one-group pre-posttest design). The sample comes from families who have stroke risk patients in the working area of Puskesmas Pacar Keling Surabaya. The sampling technique used purposive sampling with inclusion criteria of having family members at risk of stroke (diagnosis of hypertension, diabetes, cholesterol, heart disease, smoking, alcoholics, obesity, and the elderly), so a sample of 32 people was obtained. The independent variable is health education pre-hospital stroke life support, while the dependent variable is knowledge and self-efficacy. The research instrument used a questionnaire. The research was conducted online via WhatsApp and google form, then analyzed by using the Wilcoxon Signed-Rank Test using SPSS with significance $\alpha \leq 0.05$.

Results: The results of statistical tests showed that there was an effect of pre-hospital education stroke life support on family knowledge ($p = 0.002$) and self-efficacy ($p = 0.000$).

Conclusion: There is an effect of pre-hospital stroke life support education on knowledge and self-efficacy of families with stroke risk patients in the working area of Puskesmas Pacar Keling Surabaya.

Cite this as:

Kholidiyah, D. D. A., Bakar, A., & Wahyuni, E. D. (2021). The Effect of Pre-Hospital Stroke Life Support Education on Family Knowledge and Self-Efficacy with Stroke Risk Patients. *Crit. Méd. Surgical. Nurs. J,* 10(1), xx-xx.

1. INTRODUCTION

Stroke is the first cause of death in Indonesia. Stroke sufferers in Indonesia continue to experience an increase, from 7% permil in 2013 to 10.9% permil in 2018 (Riskesdas, 2018). The knowledge of families in Indonesia regarding the initial treatment given to stroke patients both at home and before being referred to the hospital (pre-hospital stroke life support) which includes early detection, how to activate an ambulance and how to transport stroke patients is still low. Research from Setianingsih et al., (2019), in the Kendal area of Central Java, states that 40% of 45 families have insufficient knowledge about pre-hospital stroke.

Insufficient knowledge will result in low self-efficacy (confidence in decision making) in conducting pre-hospital stroke life support. Rizki et al., (2019) explained that 66.7% of 33 families had a moderate level of self-efficacy in doing pre-hospital stroke. The results of family interviews in the Pacar Keling Health Center in Surabaya to 5 families 3 of them answered that the family did not know the signs

of stroke symptoms, the effective time for handling stroke and lack of confidence in identifying stroke This factor is a factor of delay in reaching the time is brain and golden period in providing thrombolysis therapy. This incident resulted in the administration of thrombolysis therapy no longer effective and efficient, resulting in increased intracarnial bleeding, mortality (Diah, 2019).

WHO (2018), noted that stroke and heart disease contributed as much as 5.9 million of the total deaths in 2016. Initial analysis of the 2014 Sample Registration Survey, which was conducted by the National Research and Development Agency, shows Indonesia's mortality is dominated by stroke as much as 21% (Regulation of the Minister of Health of the Republic of Indonesia, 2017). East Java, the incidence of stroke was 11.1% permil in 2018 (Riskesdas, 2018). Meanwhile, Surabaya had 12,976 stroke patients in 2019(East Java Provincial Health Office, 2019). This disease has a low cure rate, as much as 15-30% will experience paralysis or permanent disability, about 25% will experience death in the first year after the initial attack, and as many as 14-15% will experience a second stroke in the same year (Riduan Kusuma Dharma, Dharma Kelana Kusuma, 2018). The Ministry of Health's regulation explains that the success of stroke management depends on the speed, accuracy and accuracy of the initial treatment (Setianingsih et al., 2019). The majority of delays were due to poor public knowledge and awareness of stroke (Farrag et al., 2018)

Table 1. Frequency Distribution of Characteristics of Family Respondents with Stroke Risk Patients in the Working Area of Puskesmas Pacar Keling, Surabaya (n=100)

Characteristics	n	%
Age		
18-25 years	8	25
26-45 years	14	43.8
46-65 years	10	31.2
Gender		
Women	27	84.4
Man	5	15.6
Education		
High school	20	62.5
D1	1	3,1
D3	5	15.6
D4	1	3,1
S1	5	15.6
Families with stroke risk patients, diagnosed with diabetes, hypertension, cholesterol, heart disease, smoking, alcoholics, obesity, and the elderly		
1 diagnosis	15	46.8
2 diagnosis	3	9.4
3 diagnosis	6	18.8
4 diagnosis	3	9.4
5 diagnosis	2	6.2
	3	9.4

Bandura's theory views human behavior as not merely a reflex stimulus, but also a result of the interaction between the environment and human cognitive itself (Ferianto & Rini, 2016). A person with low self-efficacy will consider himself incapable of doing and tend to give up easily, resulting in a Stroke Pre-hospital Delay Behavioral Intention (SPDBI). This incident resulted in brain cells undergoing infarction within a few minutes of the incident, at the same time that the ischemic penumbra loses function due to reduced blood supply to the brain. The extent of the damage depends on the gradian who is experiencing a lack of blood supply such as paralysis or permanent disability, aphasia, memory problems to death.(Audebert et al., 2017).

Many countries such as Japan, Australia, Norway, America, Czech, China and others have conducted health education regarding pre-hospital stroke life support. Various media methods and targets have been evaluated in their use, both in families, emergency health workers, and in the general public. In Indonesia, there have been many studies on the relationship between knowledge about pre-hospital stroke life support, both in families and in health workers, however, there are not many studies that describe giving intervention to families in improving pre-hospital stroke life support. Research in Indonesia regarding the management of pre-hospital stroke life support focuses more on emergency health workers and health cadres. (Kessler et al., 2011). So it can be concluded that

education is not suitable because people do not often interact with health workers and cadres. Nursalam & Efendi, (2008) explained that providing audiovisual education has an increase in memory by 50%. Research by Nababan et al., (2019) explains that to increase knowledge, attitudes and behavior, the buzz group method is more effective than using the lecture booklet method.

In connection with this, research is needed on pre-hospital stroke life support management that focuses on families with material adapted to AHA / ASA 2010 and 2013. One way to do stroke detection is using the method.FAST (Facial movement, Arm movement, Speech, Time) is considered simpler than other methods, so it is hoped that the family will find it easier to understand the symptoms of stroke and call an ambulance. (Meschia et al., 2014). This role is very important considering that 90% of activation of emergency services is carried out by families(Kelly et al., 2017). The research objective with pre-experimental design and post-test (one group pre-post design) using buzz groups and audiovisual media is expected to increase the knowledge and self-efficacy of families in conducting pre-hospital stroke life support.

2. METHOD

The This study was conducted on June 15, 2020 with the target of families who have patients at risk of stroke, located in the working area of Pacar Keling Health Center, Surabaya. The research design used pre-experimental pre and post-test with one group pre-post design. The dependent variable of this research is knowledge and self-efficacy, while the independent variable is pre-hospital education, stroke life support.

The sample size of the study as many as 32 respondents obtained by purposive sampling technique based on the criteria set by the researcher. Inclusion criteria include the age of the respondent 18 - 50 years old, have a minimum high school education and are equivalent, have a one roof family with a

Table 2. Knowledge Differences In Pre-Hospital Stroke Life Support Before And After Health Education For Families With Stroke Risk Patients In The Working Area Of Puskesmas Pacar Keling, Surabaya

Category	Pre Test		Post Test	
	n	%	n	%
Good	28	87.5	30	93.8
Enough	4	12.5	2	6.3
Less	-	-	-	-
Wilcoxon sign rank test p = 0.002				

Table 3. Differences In Self-Efficacy Before And After Health Education In Families With Stroke Risk Patients In The Working Area Of Puskesmas Pacar Keling, Surabaya

Category	Pre Test		Post Test	
	n	%	n	%
High	24	75	29	90.6
Low	8	25	3	90.4
Wilcoxon sign rank test p = 0.000				

diagnosis.hypertension, diabetes, cholesterol, heart disease, smoking, alcoholics, obesity, and the elderly. The research instrument used a modified knowledge questionnaire from the research of Shigehatake et al., (2014) with the indicators used including general knowledge of strokes, detection knowledge, dispatch, and delivery of pre-hospital stroke life support. Meanwhile, the self-efficacy questionnaire uses the translation of the questionnaire from Born A et al., (2014). Both questionnaires have tested the validity and reliability of 15 subjects, declared valid and reable using the windows program SPSS version 20.0

The pre-post test research data were processed using the Wilcoxon Signed Rank Test correlation test using the Windows SPSS version 20.0 program to determine the comparative data on each dependent variable. The implementation of health education using audiovisual media with the buzz group method is carried out online through the WhatsApp application. The research proposal was declared to have passed the ethical test by the Health Research Ethics Committee on June 8, 2020 with ethical number No. 2022-KEPK.

3. RESULT

Based on table 1, the results of the analysis show that the highest number of respondents by age category is

the largest in the age range 26-45 years 43.8%. Characteristics of respondents based on the most gender were female as much as 84.4%, and 62.5% had a high school education and the equivalent. Meanwhile, the distribution of stroke risk patient diagnoses, the majority of families had more than one stroke risk diagnosis. The results of the pre-hospital stroke life support knowledge assessment before and after health education are presented in table 2 below.

Based on table 2, it shows that there was an increase of 2 in each category of knowledge after health education was carried out using the audiovisual media buzz group method which was carried out for 2x60 minutes. The results of the assessment of knowledge and self-efficacy both before and after health education are presented in table 3. below.

Based on table 3, it shows that there was an increase in 5 respondents in each self-efficacy category after health education was carried out using the audiovisual media buzz group method which was carried out online through the WhatsApp application for 2x60 minutes.

4. DISCUSSION

The results of this study include the effect of pre-hospital stroke life support education with audiovisual media and the buzz group method on knowledge and self-efficacy of families with stroke risk patients.

Analysis of The Effect of Stroke Life Support Per-Hospital Education on Family Knowledge of Stroke Risk Patients

The results of the study in Table 1. indicate that there is a significant difference in results between pre-hospital stroke life support education and the level of family knowledge. The Wilcoxon sign rank test showed differences in the results before and after being given education with a value of $p \leq 0.05$ so that H1 in the research hypothesis was accepted, namely that there was an effect of providing pre-hospital stroke life support education on family knowledge of stroke risk. The pre and post test scores show that as many as 2 respondents experienced an increase in the category of knowledge after being given education. The results of this analysis also concluded that, as many as 12 respondents were classified as positive ranks (increase) with an average increase of 7.00. This increase in knowledge is in line with research conducted by Yang et al., (2017) explaining that,

The results of the research are supported by the theory of Budiman and Riyanto, (2013) in Retnaningsin, (2016) regarding factors that affect knowledge, one of which is the use of information and mass media to increase knowledge. During the health education process, whether through formal or non-formal activities, the information obtained will be analyzed to increase concentration so that the information obtained will be absorbed and produce an understanding of the material presented. The results of this health education provision are in the form of knowledge, understanding, the ability to analyze actions, and evaluate the procedures applied during the discussion process using the buzz group method.

*Pre-test*shows that as many as 28 respondents have good knowledge, 4 respondents have sufficient knowledge, and none of the respondents are classified as having low knowledge. This result is influenced by several factors, including: the majority of respondents have a minimum high school education, have a nuclear family with stroke risk patients, and are adults aged 26-45 years. These three factors influence knowledge and the learning process. So it can be concluded, the higher a person's education, the higher the knowledge and the increasing age will affect the mindset about the object or situation of the incident. This statement is in accordance with the theory of Budiman and Riyanto, (2013) in Retnaningsih, (2016) the factors that influence knowledge are education and age.

Families who have stroke risk patients will be motivated to achieve and improve the optimal level of

health. The family will seek all information related to stroke risk disease. This is related to the theory of health care and maintenance functions in the family, Bilon and Maglaya, (1998) in Efendi & Makhfudli, (2009) suggest that one of the duties of family health is to recognize health problems and make appropriate health action decisions. In addition, this statement is supported by the theory of Nurssalam and Efendi, (2008) which explains that the educational process is influenced by individual factors, one of which is the motivation of a person to do education. The theory is in line with research that has been done by Suranto,

The educational method using audiovisual media can be said to be effective in increasing knowledge, because during the learning process the brain will absorb information more quickly by using the sense of hearing and the sense of sight. This is influenced by the factor of video playback which has a total duration of 8.5 minutes which will increase interest in the material compared to a longer video duration. This statement is in accordance with the theory put forward by Nursalam & Efendi, (2008) which explains that the educational method by hearing and seeing (audiovisual) has a memory of 50%. The theory is supported by research put forward by Hartiningsih, (2018) which states that the longer the video is played, the less interest will be. The video length of 6-12 minutes will increase the interest in viewing the video.

The buzz group method is a horizontal method, during which the respondents will be invited to discuss and feel what they have experienced in the video. This method can be used as learning for participants when they experience or encounter things similar to cases. Respondents have the same opportunity to express their opinion or discussion regarding pre-hospital stroke, so that each respondent is invited to think critically about the handling of pre-hospital stroke life support. This statement is supported by the theory put forward by Effendi, (2009) explaining that the targets of health education for adults are more appropriate by using classical lecture methods, discussion (buzz groups), demonstrations and role play to increase emotional levels. The results of this analysis are in line with the research conducted by Nababan et.

Analysis of the Effect of Pre-Hospital Stroke Life Support Education on Family Self-Efficacy with Stroke Risk Patients

The results of the study in table 2. indicate that there is a significant difference in results between the pre and post test scores at the level of family self-efficacy and stroke risk patients after being given education. The Wilcoxon sign rank test showed differences in the results before and after being given education with a value of $p \leq 0.05$ so that H1 in the research hypothesis was accepted, namely that there was an effect of providing pre-hospital stroke life support education on family self-efficacy with stroke risk. The pre and post test scores show that as many as 5 respondents experienced an increase in the category from low to high after being given education. The results of this analysis also concluded that 23 respondents experienced positive ranks with a mean value of 14.96. This statement is in accordance with Bandura's theory, (2010) which explains that the self-efficacy process is influenced by four processes, namely the cognitive process (thinking and predicting), the motivation process, the affective process, and the selection process. The results of this study are in line with the research conducted by Rizki et al., (2019) which explains that there is an effect of health education on people's knowledge and self-efficacy in carrying out pre-hospital stroke relief measures.

Analysis of the pre-test scores found that 24 respondents were classified as high self-efficacy. This is because these respondents have good knowledge about pre-hospital stroke life support. This statement can be seen from the results of the pre-test regarding knowledge carried out simultaneously. A person who already has good knowledge will influence the coping

system and emotions, these two components are elements in forming one's self-confidence in taking action. In accordance with the theory put forward by Bandura (1997) that self-efficacy is influenced by cognitive processes so that it will lead to an increase or decrease in behavior to be carried out. Bandura also explained that self-efficacy is a bridge between knowledge and behavior(Agustin et al., 2018). This statement is in line with Pratama's research (2017) which states that there is a significant correlation between knowledge and self-efficacy in family caregivers of mental disorders patients at RSJD Dr. RM. Soedjarwadi.

The pre-test value shows that before being given health education, there were 8 respondents who had a low level of self-efficacy. In this group, most of them answered statements that contained aspects of optimism in overcoming problems, hopes and beliefs in identifying and helping pre-hospital stroke patients with disagreement and some answered strongly disagreed. This is because respondents have never had direct experience or good knowledge of pre-hospital stroke life support. Respondents who have less knowledge will have low self-confidence or self-efficacy in providing pre-hospital stroke. This statement is in accordance with the theory put forward by Lianto, (2019) explained that the source of a person's self-efficacy comes from experiences of success, other people's experiences, verbal persuasion and individual psychological conditions. This statement is also supported by research conducted byFerianto & Rini, (2016) explained that the factors related to nurses' self-efficacy in performing cardiac resuscitation were mastery experience (experience of success) and verbal persuasion (verbal persuasion).

During the discussion process using the buzz group method and using audiovisual media, respondents are invited to think, in the process there is a cognitive construction of the knowledge obtained during the education process, so that in giving opinions about cases, respondents have a theoretical basis for the actions and arguments to be given. During the learning and discussion process, the brain absorbs information and processes the information into understanding and emotions. These two components give rise to a feeling of self-confidence or self-efficacy. Nuzula (2010: 100) in (Efendi, 2013) explains that self-efficacy is the result of a cognitive process (learning) in the form of decisions, beliefs and expectations to what extent individuals estimate themselves in carrying out tasks to achieve certain goals.Ayu et al., (2019) explained that there were significant results between before and after being given nutrition education with the buzz group method on knowledge and self-efficacy regarding anemia in pregnant women. In addition, this statement is also supported by research conducted by Setiawan, et al., (2020) that education using audiovisual media and booklets is effective to increase knowledge related to menopause and self-efficacy of premenopausal women.

The post-test value shows that after being given health education, 90.6% of respondents who have a low level of self-efficacy are classified as high self-efficacy. In this group, most of them answered statements that contained aspects of optimism in overcoming problems, hopes and beliefs in identifying and providing help for pre-hospital stroke patients who were answered with a statement of agreement and some answered strongly. This is because respondents feel they have sufficient knowledge to identify and provide assistance to pre-hospital stroke patients. This statement is in accordance with the theory put forward by Lianto, (2019) explaining that the source of one's self-efficacy comes from experiences of success, other people's experiences, verbal persuasion and individual psychological conditions. This statement is also supported by research conducted by Ferianto et., Al (2016) explaining that factors related to nurses' self-efficacy in performing cardiac resuscitation are

mastery experience (experience of success) and verbal persuasion (verbal persuasion).

CONCLUSION

Education for pre-hospital stroke life support using audiovisuals with the buzz group method can increase knowledge and self-efficacy of families with stroke risk patients. The results of this study can provide an overview of the method of education by nurses regarding pre-hospital stroke life support with the buzz group method. While the suggestion for further researchers is that it is necessary to conduct research on behavior so that it can be seen whether the provision of pre-hospital stroke life support education can contribute to reducing mortality and morbidity due to stroke.

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