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BOBATH THERAPY AS AN EARLY STROKE PREVENTION EFFORT

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ABSTRACT

In ischemic stroke patients, the main problem that occurs is cerebral blood flow disturbances. Global Burden Disease data shows that 80% of the population is ischemic stroke and 20% hemorrhagic stroke with a moderate level of neurological deficit of 89%. Nursing actions that can be taken are by providing activities to stroke patients to increase cerebral blood flow. The implementation of this community service activity aims to teach Cadres and the community regarding Bobath Therapy as an early stroke prevention effort. The method used in this community service activity is to provide training and education health services. This activity was carried out during April-May 2022 which was attended by 12 health cadres and 22 residents in RW 06 Wonokromo Village, Surabaya. The results show that the activity has achieved success according to the success indicators that have been set, namely as many as 12 health cadres were successfully recruited; average attendance is 100%, participants participate in activities enthusiastically, knowledge of cadres after training and residents after counseling increases significantly.

Keywords: *Bobath Therapy; Stroke; Elderly.*

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INTRODUCTION

Disability due to stroke is a major health problem in both developed and developing countries (Brandes & Gray, 2020). Post-stroke disability can be in the form of changes in the level of patient's neurological deficits which include: motor, autonomic, sensory and cognitive function disorders (Dancer et al., 2017). Ability to ambulate accompanied by improvement of cognitive function is the main priority to be achieved by patients and their families at the time of post-stroke (Schwartzman, 2019).

Of the four million Americans living post-stroke, 15-30% have permanent disability (Center for Disease Control and Prevention, 2019). The prevalence of stroke sufferers (per mile) based on doctor's diagnosis in Indonesia in 2018 was 10.9%, and in East Java it was 12.4% (Kementrian Kesehatan Republik Indonesia, 2019). One of the risk factors for stroke is hypertension, the prevalence of hypertension in RW.06 Wonokromo Village is 63% in adults and 37% in the elderly. In addition, there were also 7 ischemic post-stroke residents with ambulation disabilities.

So far, there is no citizen control over their own health so that many hypertension events are not detected early which results in delayed treatment and leads to stroke events. In addition, Integrated Healthcare Center activities only focus on the health of the elderly and toddlers so that problems in the adult group are not studied properly. One of the preventions of stroke can be done by giving physical activity.

Physical activity that can be done as an effort to prevent stroke is Bobath Therapy (Aksoy & Timurtas, 2015). Bobath Therapy technique is an exercise that stimulates prioceptors to increase the need for neuromuscular mechanisms (Mikołajewska, 2017). Exercising the extremities can result in increased blood flow (Pumprasart et al., 2019) on the motor cortex and somatosensory which can cause relaxation of cerebral blood vessels (Gray & Ford, 2018) so that the incidence of stroke in residents can be controlled (Gilmour et al., 2020).

OBJECTIVES

General Purpose

The implementation of this community service activity aims to teach Cadres and the community regarding Bobath Therapy as an early stroke prevention effort.

Special Purpose

1. Optimizing cadre empowerment programs in stroke prevention efforts
2. Increase public knowledge about early detection of stroke

PLAN OF ACTION

Strategy Plan

The implementation method is planned systematically starting from the pre-activity stage, the activity implementation stage and the evaluation stage of the activities that have been carried out. The pre-activities stage of the service team carried out: 1) the implementation strategy meeting was carried out by involving the RW Chair. 06 Wonokromo Village and its Cadres to discuss the strategy and planning of the community service program carried out, 2) prepare learning media and prepare facilities and infrastructure such as video bobath therapy, tensimeters and cholesterol checking tools 3) conduct a site survey one day before the activity is carried out to carry out appointments with counseling participants, preparing and arranging the equipment used during the activity

Implementation

The activity implementation stage is the main stage of the community service program. The implementation of this community service has received approval from Universitas Nahdlatul Ulama Surabaya with letter of assignment number 505/UNUSA-LPPM/Adm-E/IV/2022. The target of activities at the implementation stage are Cadres and residents in RW.06 Wonokromo Village where in the implementation of the community service team will provide socialization to Cadres and residents by implementing health protocols at the RW.06 Wonokromo Village Office, the activity will be divided into 4 sessions with the distribution of the implementation is as follows:

Cadre training

The core activity of this community service is providing education and demonstrations to Cadres regarding how to prevent stroke with bobath therapy activities before conducting outreach to residents.

Counselling

The core activity of this community service is counseling or material presentation about how to exercise using the bobath therapy method for residents which aims to increase knowledge and understanding of stroke prevention. Counseling or material presentation will be delivered by speakers implementing community service activities using the lecture, question and answer method and demonstration (direct practice).

Figure 1. Cadre Training.

Bobath Therapy Demonstration

After the counseling is complete, the activity will be continued by seeing and practicing the bobath therapy movement which is carried out directly by residents with assistance from the community service team.

Figure 2. Counselling or Material Presentation about How to Exercise using the Bobath Therapy.

Pre-test and Post-test

Pre-test is an activity to test the target's level of knowledge about the material to be delivered, in this case is knowledge about stroke prevention with bobath therapy. This activity is carried out before the presentation by the presenter. Test the level of knowledge using a questionnaire containing questions related to the material that will be given to residents and filled in according to the ability of the residents.

Post-test is an activity to test the target's level of knowledge about the material that has been delivered by the presenter. This activity aims to determine the increase in people's knowledge from before listening to the counseling exposure to the knowledge after listening to the counseling presentation that has been delivered by the speaker.

Setting

The implementation of community service activities regarding Bobath therapy as an early stroke prevention effort was carried out at the RW.06 Office of Wonokromo Village in April-May 2022

Target

The target for the implementation of community service is 34 residents of RW.06 Wonokromo Village.

RESULTS AND DISCUSSION

Community service activities with the theme "Bobath Therapy as an Early Stroke Prevention Effort". This activity received enthusiastic response from the community and cadres with the participation of 34 people.

Based on table 1, it can be seen that almost all of the respondents (76.47%) are in the age of 46-55 years which are included in the category of early elderly. This is in line with the results of research from Sukrayasa et al., (2018) that the more mature the individual is, the more mature a person's thought process is. Age affects the individual's perception and mindset. At the early age of the elderly, if they gain knowledge, they will play an active role in society and social life. Most (70.59%) of respondents have high school education, so it is necessary to provide education to respondents about physical exercise that can be given to prevent stroke.

Table 1. Frequency Distribution of Respondents Characteristics.

Variable	Respondent n (30)	
	f	%
Age		
Late adulthood (36-45 years)	3	8.83
Early elderly (46-55 years)	26	76.47
Late elderly (56-65 years)	5	14.70
Education		
Primary school	3	8.83
Junior High School	24	70.59
Senior High School	7	20.58
Profession		
Work	14	41.18
Doesn't work	20	58.82

Stroke patients have problems in Cerebral Blood Flow (CBF), cerebral blood flow is between 10 to 20 ml per 100 grams per minute, cerebral cells are ischemic and there is impaired transport of potassium (K+), Calcium (Ca2+) and sodium (Na+) ions and there is no electroencephalogram (Na+). EEG), this area is called the penumbra. Anaerobic metabolism occurs in ischemic cerebral cells so that it can result in the failure of the formation of adenosine triphosphate (ATP) which causes potassium ions to leave the cells and conversely Calcium and Sodium ions enter the cells (Smeltzer & Bare, 2013). This situation can lead to ionic imbalance and, if continued, cause cerebral edema, thus affecting the outcome of stroke patients. Cerebral tissue ischemic processes occur quite quickly for 8 to 12 hours, neurons shrink, cytoplasm and nucleus are damaged, so stroke management must be fast and is expected to minimize

neurological deficits and improve treatment outcomes for stroke patients (Demortier & Leboeuf-Yde, 2020). The main factors causing penumbral ischemia are CBF and cellular metabolism, to improve CBF and cellular metabolism, appropriate nursing actions are needed in addition to medical measures.

In the implementation of the extension activities, it takes ± 100 minutes, starting with a pret-test to find out the respondents' insights. After that, the transfer of knowledge was carried out through the learning media that had been prepared, namely video bobath therapy which was useful as an exercise guide when carrying out live demonstrations. Then it was followed by a post-test session to measure the level of understanding of the material provided along with a discussion that could be used as a benchmark for the team's level of success in providing educational materials.

The counseling activities carried out on bobath therapy as an effort to prevent stroke early through the results of the pre-test and post-test questionnaires are shown in table 2.

Table 2. Results of pre-test and post-test.

Knowledge	Category	n	%
Pre-Test	Less	23	67.6
	Enough	9	26.5
	Good	2	5.9
Post-Test	Less	4	11.8
	Enough	10	29.4
	Good	20	58.8

Based on table 2, the knowledge of the respondents during the pre-test had low knowledge (67.6%) about physical activity that can be done as an effort to prevent stroke, after the counseling activities the respondents' knowledge increased to good knowledge (58.8%). Increased knowledge can be influenced by age and education (Notoatmodjo, 2012), the increasing knowledge, the better the individual response in dealing with disease.

The activities of residents of RW.06 in their spare time are only taking care of grandchildren, research by Dunsky et al., (2017) states that the elderly who are less active have health risks compared to the elderly who are diligent in doing activities. Physical activity can be done in free time either at home or at work. Daily activities that can be done by the elderly include doing housework, gardening, doing hobbies, recreation and exercising. One of the types of exercise that can be done by the elderly is bobath therapy.

Bobath Therapy technique is an exercise that stimulates prioceptors to increase the need for neuromuscular mechanisms (Mikołajewska, 2017). Exercising the extremity can result in increased blood flow to the opposite side of the motor cortex and somatosensory areas. This happens because the motor cortex stimulates changes in blood flow in the opposite direction. This process occurs because of changes in astrocyte activity so that it can increase neural activity that produces Nitric Oxide (NO). NO can cause relaxation of cerebral blood vessels and cause an increase in CBF (Gray & Ford, 2018).

CONCLUSION

Community service activities have a goal to prevent stroke with bobath therapy in RW.06 Wonokromo Village went well and were greeted enthusiastically by participants during the activity. This activity is a solution to the problems that

exist in RW06. Residents need physical activity to maintain health to avoid stroke.

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