



STROKE PREVENTION AND IMPLEMENTATION OF BOBATH EXERCISE IN THE ELDERLY IN BIRINGKANAYA, MAKASSAR CITY

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Abstract

The high elderly population in Indonesia encourages the need for efforts to create healthy and independent elderly. One of the impacts of the high population of elderly people is a decrease in the musculoskeletal system, a decrease in fat free mass or an increase in fat mass, which causes a decrease in muscle strength. Physical activity and physical exercise in the elderly are the main strategies that can play a role in preventing and slowing down the decline in function caused by aging and prevent the elderly from getting a stroke. This Community Service activity aims to increase community knowledge and skills in preventing and using bobath exercises in the elderly. This activity was carried out in Berua Village, Biringkanaya District, Makassar City in June 2023 which was attended by the elderly community, health cadres, community leaders and students. Implementation of activities with the method of lectures, discussions, demonstrations and practice in the elderly and post stroke patients. Evaluation of the activity begins with a pre-test regarding the participants' knowledge and skills in stroke and after several demonstrations, a post-test is carried out. The results of the activity showed that all participants experienced increased knowledge and skills in preventing and implementing bobath in the elderly. The conclusion from this community service activity is that the participants' knowledge and skills have increased after being given education about the prevention and application of bobath in the elderly and stroke patients.

Keywords: Prevention, Bobath, Elderly, Stroke

INTRODUCTION

The high elderly population in Indonesia encourages the need for efforts to create healthy and independent elderly (Kiik, Sahar and Permatasari, 2018). The elderly population in Indonesia has increased significantly marked by increasing life expectancy for the elderly. The elderly are a high-risk group who experience various health problems.

The number of elderly people in 2020 is 26.82 million (9.92%), so that Indonesia is in the process of transitioning to an aging population, if the population exceeds 10 percent, it will become a country with an aging population structure (Central Bureau of Statistics, 2021). The more the population in Indonesia, the higher the life expectancy, the increasing life expectancy causes the number of elderly people in Indonesia to increase every year. Elderly is someone who is over 60 years old.

Makassar City occupies the second largest number of elderly people in South Sulawesi after Bone Regency, namely 79,581 people. One of the sub-districts in the city of Makassar, namely the Paccerakang sub-district, Biringkanaya District, has 485 elderly people spread across 7 RWs.

The number of elderly people in the Paccerakang sub-district is 485 people who have not received adequate health services and many elderlies suffer from degenerative diseases such as hypertension, rheumatism, diabetes mellitus, gastritis, upper respiratory tract infections, stroke, blurred vision which causes the risk of falling, etc. not followed up on an ongoing basis (Arnisi

Puspitha R et al, 2019). If the increase in the elderly population is matched by the ability of the elderly to be independent, qualified and not a burden on society, then the aging population will indirectly have a positive influence on national development (Maylasari et al., 2019).

Maintaining quality of life and reducing the burden of health problems due to aging is the essence of healthy aging (Eckstrom et al., 2020). In aging, there are a number of declines in body functions such as decreased flexibility, decreased muscle elasticity, and decreased muscle strength (Sulaiman and Anggriani, 2018). This decrease in function is observed not only in one body system, but in several body systems. This has an impact on the emergence of various diseases and other health problems.

One of the impacts of the high population of elderly people is a decrease in the musculoskeletal system, a decrease in fat free mass or an increase in fat mass, which causes a decrease in muscle strength. The decrease in muscle strength that occurs is around 30-40%. Especially in the lower extremity muscles will experience a decrease in muscle strength, resulting in balance disorders in the elderly.

With the continuous increase in the elderly population, healthy aging needs to be optimized to support the health and independence of this population. Physical activity and physical exercise in the elderly are the main strategies that can play a role in preventing and slowing down the decline in function caused by aging and prevent the elderly from getting strokes (Eckstrom et al., 2020; Lin et al., 2020).

Regular physical activity in the elderly has been shown to be associated with increased functional independence, stamina, muscle strength, bone and joint health and improvements in blood pressure. Several other benefits of physical activity include reducing the risk of falls and fractures, the incidence of cardiovascular disease, pain, symptoms of depression and anxiety and maintaining cognitive function (Maula et al., 2019).

A decrease in physical activity in a short period of time (1-4 weeks) is associated with a negative impact on cardiovascular function and an increase in cardiovascular disease risk factors (Bu et al., 2021). Thus, the impact caused by a decrease in physical activity during this pandemic will certainly lead to an accelerated decline in function in the elderly.

The physical activity intended for this community service activity is the application of Bobath exercises, because this exercise can improve physical and functional abilities in the elderly and stroke. Several studies on bobath exercises are Mikołajewska, Emilia (2017), Dubey L et.al (2018), Ko EJ, Chun MH (2016) who concluded that bobath exercises can improve the functional movement of stroke patients, because they increase trunk and lower extremity movement control. , hip muscle strength, walking speed and daily activities in stroke (Dubey L, 2018). The results of Suharto et al's research (2021) show that bobath exercise is effective in walking ability and reducing leg spasticity in stroke sufferers at the Bhayangkara Police Hospital, Makassar.

This community service is based on research that has been carried out at the Bhayangkara Police Hospital in 2021, thus the Community Partnership Program (PKM) through the assistance of the Elderly Posyandu is expected to provide benefits for increasing life expectancy and the health status of the elderly in Biringkanaya Makassar.

The problems faced by partners are the lack of health problems for the elderly, the lack of knowledge of the elderly about stroke prevention, and education on giving bobath exercises and the benefits of proper exercises in order to maintain and improve the fitness components of the elderly.

METHOD AND PROCEDURES

The problems faced by partners are the lack of health problems for the elderly, the lack of knowledge of the elderly about stroke prevention, and education on giving bobath exercises and the benefits of proper exercises in order to maintain and improve the fitness components of the elderly.

To solve the partner's problems, the solutions that will be carried out in community service activities are:

1. Health education about stroke prevention in the elderly group

Stroke is a sudden loss of brain function caused by an interruption of the blood supply to a part of the brain. Stroke is a loss of brain function caused by the cessation of blood supply to parts of the brain (Brunner & Sudarth, 2000 in Veni Wulandari, 2009). The definition of stroke according to WHO (2006) is a clinical manifestation of impaired cerebral function, both focal and global, which lasts quickly and lasts more than 24 hours, or ends in death, without the discovery of disease other than vascular disorders.

Stroke prevention can be done by minimizing existing risk factors. The incidence of stroke can be caused by several risk factors consisting of age, race, sex, smoking habits, history of cholesterol, foods that contain high fat, salt intake. A diet that contains lots of fiber, such as fruits and vegetables and is low in salt.

2. Provision of bobath exercise training to the elderly group

Bobath Exercise Goals:

- a. Increase muscle strength
- b. Maintain body balance
- c. Increase mobility or body movement
- d. Increase independence in activities

Community Situation Analysis

Currently, the elderly population is experiencing an increase which can become a burden to their families and the government if the elderly are unwell. An analysis of the community situation

has been carried out to determine the conditions experienced by the elderly and their families in the city of Makassar, with the following stages:

1. Observation of the target audience
Direct observations were made on the elderly at the elderly Posyandu around Biringkanaya, Makassar city.
2. The physical condition of the elderly has decreased physiologically
3. Problem Formulation
What is the knowledge of the elderly regarding stroke prevention and is bobath exercise beneficial for elderly fitness?

Purpose of Community Service

The purpose of community service is to increase:

1. Knowledge of the elderly about stroke prevention
2. The elderly can do bobath exercises regularly
3. Increasing the fitness of the elderly

Problem Solving Plan

The implementation of this community service uses a participatory approach method, meaning that the fostered partners will be actively involved in every stage and development activity that will be carried out through the provision of health education. The process carried out is as follows:

1. Preparation Stage
It is a program preparation process that begins with obtaining permits, advocating and coordinating with partners. At this stage an initial approach to partners is also carried out as well as an initial study before the service program is implemented. In addition, counseling materials and instruments were prepared to be used to measure the achievement of counseling targets. Furthermore, the preparation of stroke prevention material and bobath exercise guide booklets for the elderly
2. Implementation Stage
In accordance with the approach method implemented, community service activities are carried out by providing health education about stroke prevention and bobath exercises for the elderly. Before the counseling was carried out, a pre-test was carried out on the counseling participants. The method of delivering the material is carried out interactively and participatively using a variety of interesting audio-visual media. After the implementation of the counseling, a post-test was carried out to assess the achievement of an increase in the knowledge of the counseling participants.
The implementation of bobath exercise training for the elderly is carried out directly using a model/person trying "how to do bobath" and the elderly participants immediately carry it out

repeatedly until they can master the exercise. The elderly participants were also given a Bobath exercise guide booklet as a guide for counseling participants at the end of the activity so they could do this exercise at home. After the training is carried out, the community service team monitors the implementation of bobath training at the Elderly Posyandu, so that this activity can be sustainable

3. Evaluation Stage

The action on evaluation is knowing the constraints and evaluating the implementation of the service being carried out. The service team will evaluate the achievement indicators for solutions to problems experienced by partners. Furthermore, the results of the evaluation will be submitted and discussed with partners. The sustainability of the program will also be discussed at this stage.

4. This reporting stage will include the preparation of the final report as accountability for the implementation of the community service program

Participants in community service activities

1. General public
2. Health Workers
3. Posyandu cadres
4. District and sub-district government officials
5. Student

Partner Participation

Partners play an active role in following the theoretical presentations and explanations regarding stroke prevention presented by devotees, so that knowledge about health, especially true stroke prevention, increases. After that, the partners practice directly with the implementation of the bobath method to increase the strength of the elderly's muscles, previously explained and demonstrated by the instructor, then the partners will try directly under the instructor's supervision, so that the ability of the elderly to do this exercise increases.

IMPLEMENTATION OF COMMUNITY SERVICE

This Community Service Activity was held on May 20 and 21 2023 with 40 participants. The method used in this activity is the provision of material with lectures and hands-on practice on how to do bobath exercises. The material provided is stroke prevention and the use of bobath exercises in the elderly.

Before the activity started, the participants filled out the pretest. After the presentation of the material, the participants were divided into several groups to be given hands-on training on how to do

bobath training assistance. Each group is trained by instructors consisting of competent students and accompanied by volunteers.



Figure 1. Community Service Participants



Figure 2. Counseling about stroke prevention



Figure 3. Practice of implementing Bobath therapy



Figure 4. Discussion with participants regarding Bobath Therapy

RESULTS AND DISCUSSION

Results

The final stage is the evaluation stage which is carried out through a post test. The post test aims to measure the success of the education that has been carried out and identify deficiencies found as a basis for preparing programs for further activities.

Evaluation is carried out during simulation and counseling activities by assessing the level of knowledge and skills of participants during the activity. The evaluation results can be seen in tables 1 and 2 below.

Table.1. Pretest and post test results of participants' knowledge of early symptoms of stroke

Value	Knowledge			
	Pre test		Post test	
	f	Persentase	f	Persentase
0 – 5 (Less)	29	72,5	0	0 %
6 – 10 (Enough)	11	27,5	40	100%
Total	40	100	40	100 %

Table.2. Pretest and post test results of participants' knowledge Stroke prevention

Values	Knowledge			
	Pre test		Post test	
	f	Persentase	f	Persentase
0 – 5 (Less)	37	92,5	0	0 %
6 – 10 (Enough)	3	7,5	100	100
Total	40	100 %	40	100 %

Table 3

The results of the pre-test and post-test skills of the participants in carrying out the bobath exercise

Value	Skill			
	Pre test		Post test	
	f	Persentase	f	Persentase
0 – 5 (Less)	40	100 %	0	0 %
6 – 10 (Enough)	0	0 %	40	100 %
Jumlah	40	100 %	40	100 %

Table.4. Results of Achievement of Community Service activities

Activity Week	Target Achievement	Description
I	Participant understanding = 100%	Target achieved (100%)
II	Implementation of Activities Target achieved (100%)	Target achieved (100%)
III	Participants can carry out simple treatments for children with cerebral palsy.	Target reached

Discussion

Stroke is a serious disease that has a significant impact on individuals and society as a whole. Stroke is a medical condition that occurs when the blood supply to the brain is interrupted or stopped, which can cause permanent damage to brain tissue. Early prevention of stroke is very important to reduce the incidence and its negative impact. Therefore, increasing public awareness of the importance of early stroke prevention is a top priority in the effort to create a healthier and more productive society.

Recent research shows that the level of public awareness of the importance of early stroke prevention is still low. One of the studies conducted by Jang et al. (2018) found that only a small proportion of people have adequate knowledge about stroke risk factors and preventive measures that can be taken. This shows the need for efforts to increase public awareness through educational approaches and appropriate campaigns. Education and public campaigns are an effective way to increase public awareness of the importance of early stroke prevention.

Research by Kim et al. (2019) showed that health education programs that provide information about stroke risk factors and preventive measures can significantly increase public knowledge. In addition, through public campaigns involving mass and social media, messages about early stroke prevention can be conveyed more widely and effectively to the public. The role of medical personnel

and health professionals is also very important in increasing public awareness of early stroke prevention.

In a study conducted by Lee et al. (2021), it was found that good communication between patients and medical personnel regarding stroke risk factors and preventive measures can have a positive impact on the level of patient awareness and participation in early prevention. Therefore, it is important for medical personnel to provide clear and reliable information to patients. In order to increase public awareness of the importance of early stroke prevention, collaboration between the government, health institutions, community organizations and the general public is needed. Government support in providing easily accessible health facilities and services as well as organizing a national campaign on early stroke prevention is the key to success. In addition, involving community leaders and non-governmental organizations can also strengthen early stroke prevention efforts.

It is important to remember that each person has a different stroke risk, depending on genetic and lifestyle factors. By adopting a healthy lifestyle and having regular health checkups, you can reduce your risk of stroke and maintain your overall health. If you have a family history of stroke or have certain risk factors, talk to your doctor for specific advice on stroke prevention. Early symptoms of a stroke can vary depending on the type of stroke and the area of the brain that is affected. A stroke occurs when blood flow to the brain is interrupted, either by a blocked blood vessel (ischemic stroke) or a ruptured blood vessel (hemorrhagic stroke). Stroke prevention efforts include: Blood pressure: Keep blood pressure normal by following a healthy diet, exercising regularly, avoiding excessive salt consumption, and if necessary, taking blood pressure medication prescribed by a doctor. Control Cholesterol Levels: Monitor and control cholesterol levels in the blood. Avoid foods high in saturated fat and cholesterol, and maintain a healthy diet. Stop Smoking Habits: Quit smoking and avoid secondhand smoke. Smoking increases the risk of stroke because it damages blood vessels and causes plaque to build up in the arteries.

Stay Physically Active: Engage in regular physical activity, such as walking, swimming, cycling or other sports. Physical activity helps maintain a healthy weight, improves blood circulation, and keeps the heart and blood vessels healthy. Eat a Healthy Diet: Eat nutritious foods, including lots of fruits, vegetables, whole grains, fish, and low-fat foods. Avoid consuming foods high in salt, sugar, and saturated fat. Limit Alcohol Consumption: If you drink alcohol, do so in moderation. Excessive alcohol consumption can increase blood pressure and stroke risk. Check Blood Sugar: If you have diabetes, it is important to manage blood sugar well, because diabetes can increase the risk of stroke. Monitor Heart Rate: If you have an arrhythmic condition or irregular heartbeat, be sure to monitor and manage the condition with the help of a doctor. Control Other Risk Factors: Other risk factors such as obesity, stress and lack of sleep must also be managed properly. Get Regular Health Checkups: Get

regular checkups and follow your doctor's advice to prevent or control health conditions that could potentially increase your risk of stroke.

The results of community service activities show an increase in knowledge and skills after community service activities are carried out in the form of simulations and demonstrations in the prevention and treatment of stroke patients. Social Learning Theory is a theory put forward by social psychologist Albert Bandura. This theory emphasizes that learning can occur through observing and imitating the behavior of others in a social environment, without having to experience direct reinforcement or punishment. This theory also recognizes the role of cognition and mental processes in learning, including perception, attention, and motivation. Social Learning Theory has broad applications in a variety of fields, including education, clinical psychology, organizational behavior, and habit formation. In the context of education, an approach that uses the principles of this theory can help increase learning motivation and shape positive behavior in students by providing good models and providing positive reinforcement when students show the desired behavior.

Cognitive theory plays an important role in the fields of education, psychology, and other cognitive sciences. The application of this theory can help educators and educational planners to design learning methods that are more effective and relevant to student learning processes. Cognitive theory also helps in understanding how humans process information, think, and solve problems, thus contributing to the development of science and technology that involves human cognitive aspects.

According to (Notoatmodjo, 2012) that health counseling is a planned activity that aims to influence other people. Other people in question are individuals, groups, or communities. The desired result of counseling or health education is a change in health behavior

This is in accordance with Notoatmodjo's statement (2014) that after a person receives a stimulus in the form of counseling and demonstrations and then conducts an assessment or opinion on what is known, the next process is expected to be able to carry out or practice what is known and addressed. Demonstration training is an intervention activity that leads to a desired change in behavior. Training activities can be regarded as learning activities while working. The expected results of the training are changes in knowledge, attitudes and behavior or in cognitive, affective and psychomotor aspects (Isyti'aroh et al., 2018).

Limited knowledge of the community, so this activity is a solution to the problems faced in the prevention and treatment of children with special needs. The results of the evaluation of training activities in the community after attending this training, it was found that this training material was easy to understand, very easy to do and the participants were eager to provide information on the results of the training to other people and the cadres also suggested that there be more training so that the community know the importance of handling children with special needs.

In community service activities the priority is partner independence in carrying out activities that have been trained. The training program is able to increase knowledge and awareness and concern

for a healthy lifestyle. Then the cadres are able to absorb the information provided so that the empowerment of cadres can be optimized.

These results indicate that education is an effective way to increase knowledge. This statement is in line with the results of research which states that there is an effect of providing education on increasing parental knowledge (L. Putri et al., 2020). Other research also found that there were differences in knowledge before and after education was carried out for parents of children with cerebral palsy (Awanis & Astriyana, 2019). Increased knowledge can be influenced by several factors, one of which is the suitability of the program content, the more appropriate the training program content is with the target needs, the more likely the training will give positive results.

Health education has a central role in helping people understand and develop the knowledge and skills needed to maintain optimal health. Through health education, the public can obtain relevant information on disease prevention, healthy eating patterns, physical activity, stress management, and various other aspects of health. This effort aims to change people's behavior to be more aware and responsible for the health of themselves and their families.

Health education plays an important role in increasing public health knowledge. By providing accurate and up-to-date information on various aspects of health, people can understand the risks and consequences of unhealthy behavior. Better knowledge about disease prevention, early symptoms of disease, and how to manage certain health conditions will help people take the right actions and be more proactive in maintaining their health.

Health education also aims to change people's attitudes and behavior towards health. Through information that is conveyed in the right way, people can realize the importance of a healthy lifestyle and identify actions that need to be taken to achieve their health goals. Health education can help people reduce risky behaviors, such as smoking, consuming unhealthy foods, and lack of physical activity, and replace them with healthier behaviors.

Health education also plays a role in building public awareness of relevant health issues. By disseminating information through outreach programs, health campaigns, or social media, people can better understand health problems and their impact on their lives. Health education can also stimulate active community participation in joint health efforts, such as carrying out routine health checks, vaccinations, or environmental clean-up actions.

CONCLUSION

The success of Community Service Activities in increasing community knowledge and skills in stroke prevention and the application of the Bobath method to the elderly is a clear reflection of a deep commitment to community empowerment. In this endeavor, careful steps have been taken to confirm its positive impact. Through careful surveys and assessments, real changes in understanding and awareness regarding stroke risk and key Bobath techniques have been shown to occur. With the

data investigated, it became clear that the participants not only gained theoretical knowledge, but were also able to apply this knowledge in their daily routines, building a strong foundation for protecting their own health and caring for the elderly around them.

This success is also reflected in the positive feedback from participants who have been involved in this activity. They have experienced significant changes in the way they approach health, showing more confidence in applying the Bobath method to the elderly around them. In fact, over time, the long-term impact of this activity is still visible in the participants' ongoing efforts to maintain their health and contribute to the welfare of society. By sharing the results of these activities more widely, the potential to inspire and encourage the participation of more people in similar endeavors grows. This whole story depicts a story of enlightenment and positive change that blooms from dedication in providing real benefits to society at large.

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