

## IMPLEMENTATION OF PROGRESSIVE MUSCLE RELAXATION FOR HYPERTENSION PATIENTS

Ridawati Sulaeman<sup>1)</sup>  
IGA Puja Warnis Wijayanti<sup>2)</sup>  
Sitti Rusdianah Jafar<sup>3)</sup>

<sup>1)</sup>Jurusan Keperawatan Poltekkes Kemenkes Mataram [ridasulaeman@gmail.com](mailto:ridasulaeman@gmail.com)

<sup>2)</sup>Jurusan Keperawatan Poltekkes Kemenkes Mataram  
[1965ayuwijayanti@gmail.com](mailto:1965ayuwijayanti@gmail.com)

<sup>3)</sup>Jurusan Keperawatan Poltekkes Kemenkes Mataram [sittirusdianah@gmail.com](mailto:sittirusdianah@gmail.com)

### Introduction

The incidence of hypertension every year has increased. A person suffering from hypertension has twice the risk of heart disease and eight times stroke compared to people with normal blood pressure (Widharto, 2009). This is also confirmed by Katzung(2013), that persistent hypertension will damage the blood vessels of the kidneys, heart and brain and cause an increased incidence of kidney failure, coronary disease, heart failure, stroke, and dementia. In general, hypertension treatment can be done in two ways, namely without drugs (non-pharmacological treatment) and with drugs (pharmacological treatment). Non-pharmacological treatment is indeed difficult to cure hypertension, but through non-pharmacological treatment it can control blood pressure so that it does not have too much impact on health (Widharto, 2009). Scott (2007) in Hamarno (2010) emphasized that there are 5 natural treatments to control high blood pressure and also to control stress and improve health, namely progressive muscle relaxation, medication, yoga, breathing exercises and music therapy.

Based on data from the Sedau Community Health Center in 2016, it shows that 279 residents of the Sedau Community Health Center Work Area suffer from hypertension. Keru Village is one of the working areas of the Sedau Community Health Center, Narmada District. Most of the indigenous people in Keru Village are from adulthood to old age. For the Keru village community, in terms of types of work, farmers, grocery traders, civil servants, self-employed and daily laborers. In terms of education, most of the population has a basic education (SD - SMP). Based on the results of observations in terms of age, most of them are adults to old age so that many people suffer from non-communicable diseases (PTM), including hypertension, gout, and diabetes mellitus. These diseases can reduce the quality of life for those who experience them.

### Discussion

#### A. Results

Implementation of Community Service in Karang Bayan Village, Karang Bayan Barat Hamlet, Lingsar District on August 21, 2019.

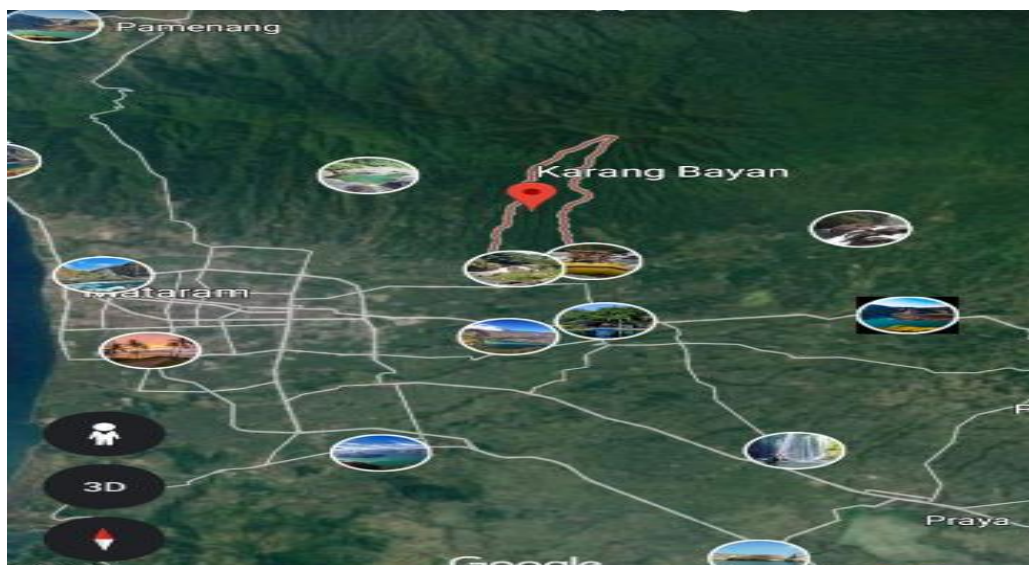


Figure 1. Regional Map Desa Karang Bayan Dusun Karang Bayan

The target of this community service implementation is 40 people in Desa Karang Bayan, Dusun Karang Bayan Barat who experience hypertension.

The stages of community service activities are carried out by: taking blood pressure measurements, explaining the benefits of progressive muscle relaxation, providing videos on progressive muscle relaxation, demonstrating to the public about progressive muscle relaxation, the community re-demonstrating the implementation of progressive muscle relaxation, providing booklets about implementation of progressive muscle relaxation as an at-home guide to performing progressive muscle relaxation



Figure 2: Blood Pressure Measurement



Figure 3: Explains the benefits of Progressive Muscle Relaxation





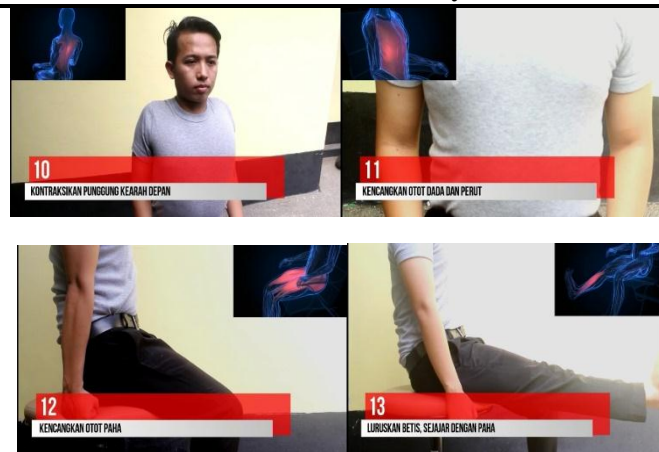


Figure 4: Steps for implementing Progressive Muscle Relaxation



Figure 5: Implementation of Progressive Muscle Relaxation

#### Evaluation Implementation:

1. Evaluating hypertensive patients about the implementation of progressive muscle relaxation by doing progressive muscle relaxation activities without the help of videos or booklets
2. The results of the implementation of progressive muscle relaxation: 2 people (5%) can do the activity correctly, 5 people (12.5%) can do some of the activities correctly, 20 people (50%) can do it with assistance, 13 people (32.5%) can do just the move.

#### B. Discussion

Relaxation is a mental and physical freedom from tension and stress (Potter & Perry, 2006). Relaxation is one of the techniques in behavior therapy developed by Jacobson and Wolpe to reduce tension and anxiety. The use of relaxation in the clinical field dates back to the 20th century, when Edmund Jacobson described things to do when tense and relaxed. When the body and mind relax, automatically the tension that often makes the muscles tighten will be ignored (Hamarno, 2010). Progressive muscle relaxation is a method to help reduce tension so that the body's muscles relax (Harmono, 2010).

The implementation of progressive muscle relaxation using videos contributes to a decrease in blood pressure. One of the functions of video media is the affective function, namely the video media is able to arouse emotions and attitudes of the audience. Respondents by paying attention to the video while paying attention and following the movements according to the scene they are watching can distract respondents and provide stimuli that produce mental and physical effects, including covering unpleasant sounds and feelings, focusing on the video can slow down and balance the waves brain, affects respiration, heart rate, blood pressure, affects muscle tension, and improves body movement and coordination, and can regulate hormones related to stress (Sulaeman et al., 2018).

This is supported by Harmono (2010), that progressive muscle relaxation aims to reduce anxiety, stress, tense muscles and difficulty sleeping. Progressive muscle relaxation therapy has been shown to be effective in lowering blood pressure in people with hypertension. (Triyanto, 2014). According to Kumutha (2014) in (Azizah, 2015), states that progressive muscle relaxation can reduce stress and blood pressure in people with hypertension.

Regular exercise will cause the baroreceptors on the peripheral nerve endings of the arterial walls to become sensitized, which in turn will block the vasoconstrictor centers and stimulate vasodilation throughout the peripheral circulatory system. This dilation of blood vessels results in an increase in blood flow, thereby increasing shear stress on the endothelium of blood vessels (Pyke & Tschakovsky, 2005). Shear stress is an important stimulus in the adaptive response of the arteries to the effects of exercise. Increased shear stress on the endothelium of blood vessels will stimulate the endothelial Nitric Oxid Synthase (eNOS) to convert the amino acid L Arginine into Nitric Oxid (NO) gas (Baraas, 2006). After diffusing from vascular endothelial cells, NO will react with ferrous ions in the heme prosthetic group on guanylate cyclase which is soluble in vascular smooth muscle cells. This will lead to an increase in the concentration of cyclic guanosin monophosphate (cGMP) (Oparil & Weber, 2005). The release of cGMP can cause vascular relaxation, so that it can reduce Total Peripheral Resistance (TPR) and also reduce blood pressure and resting pulse frequency (Baraas, 2006).

Gymnastics can also stimulate a decrease in sympathetic nerve activity and an increase in the parasympathetic nerve which affects the decrease in adrenal hormones, norepinephrine and catecholamines, as well as vasodilation (widening) of blood vessels which results in smooth oxygen transport throughout the body, especially the brain, so that it can reduce blood pressure and pulse to become normal. regular exercise activities to burn glucose through muscle activity which will produce ATP so that endorphins will appear and bring a sense of comfort, pleasure and happiness. Exercise will stimulate the HPA (Hypothalamus-Pituitary-Adrenal) axis mechanism to stimulate the pineal gland to secrete serotonin and melatonin. From the hypothalamus, stimulation will be transmitted to the pituitary (pituitary) to form beta endorphins and enkephalin which will cause relaxation and feelings of pleasure. Regular exercise can improve the level of physical fitness, so that sufferers feel fit, less anxiety, a sense of pleasure and self-confidence can arise which in turn can improve the quality of life (Sulaeman et al., 2020)

Residents of Karang Bayan Village, Karang Bayan Barat Hamlet, after carrying out progressive muscle relaxation in hypertensive patients said that they felt comfortable, provided freshness, flexed muscles throughout the body, and relieved tension and community service participants were very enthusiastic about participating in this activity because they thought this was something just got it.

## Conclusion

Residents who perform Progressive Muscle Relaxation say it provides a sense of comfort, provides freshness, relieves tension and becomes relaxed, so it is hoped that people with hypertension do it as often as possible so that they can relax so that they can lower blood pressure and health center staff can provide information to the community on the importance of carrying out muscle relaxation as often as possible. progressive in order to be able to help hypertensive patients to lower their blood pressure without using drugs.

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