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The Effect of Autogenic Relaxation on Blood Pressure Changes in Patients with Hypertension: Literature Review

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ABSTRACT
Hypertension is still the number one killer disease in Indonesia. Approximately one billion people worldwide suffer from this disease. Hypertension can be treated with pharmacological and non-pharmacological treatments. One of the non-pharmacological treatments is autogenic relaxation. This study aims to determine the effect of autogenic relaxation on hypertensive blood pressure changes. This study uses a Systematic Literature Review, a synthesis of systemic, precise, comprehensive literature studies by identifying, analyzing, evaluating through collecting existing data with an explicit search method and involving a critical review process in selecting the studies. The data from 11 journals were obtained from screening a number of journals from Science Direct, and Google Scholar. The results of the analysis showed that there was an effect of autogenic relaxation on blood pressure in hypertensive patients. Autogenic relaxation can benefit changes in blood pressure in hypertensive patients and is suitable if done regularly. The future researcher is expected to study autogenic relaxation in hypertensive patients with hypertension-caused disorders, such as heart disease, stroke, and kidney disease.

Keywords: Autogenic Relaxation, Blood Pressure, Hypertension

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BACKGROUND

Non-Communicable Disease (NCD) is a chronic disease that is not transmitted from person to person. PTM is the leading cause of death worldwide, accounting for 63% of all annual deaths. NCD includes asthma, hypertension, chronic obstructive pulmonary disease (COPD), cancer, DM, hyperthyroidism, coronary heart disease, heart failure, stroke, chronic kidney failure, kidney stones, rheumatism (Riskesdas, 2018). According to data from the World Health Organization (WHO), hypertension ranks first in the disease most commonly suffered by people globally and is in the fourth place in Indonesia (WHO, 2015).

According to WHO Prevalence data, around 1.13 billion people worldwide suffer from hypertension. This means that 1 out of 3 people in the world have been diagnosed with hypertension, and only 36.8% of them are taking drugs. The number of hypertension sufferers in the world continues to increase every year; it is estimated that by 2025 there will be 1.5 billion people suffering from hypertension, and every year 9.4 million people die from hypertension and complications (WHO, 2015).

Hypertension prevalence data in Indonesia is obtained through measuring blood pressure at age ≥18 years old, and the highest prevalence of hypertension is in Bangka Belitung 30.9%, followed by South Kalimantan 30.8%, and East Kalimantan is in the third position with prevalence reaching a 29.6% (Riskesdas, 2018). According to (WHO, 2015) hypertension or high blood pressure increases pressure in the arteries that is systemic or continues for a long time, where systolic blood pressure is equal to or above 140 mmHg, and diastolic pressure is equal to or above 90 mmHg. The classification of hypertension according to WHO (2015) includes prehypertension with the systolic blood pressure of 120-139 mmHg and diastolic 80-89 mmHg, stage 1 hypertension systolic 140-159 mmHg and diastolic 90-99 mmHg, stage 2 systolic hypertension ≥160 mmHg and diastolic ≥100 mmHg, and hypertensive systolic crisis> 180 mmHg and diastolic ≥ 110 mmHg.

The guidelines of the American Heart Association (AHA, 2017) states that there is a change in the definition or classification of hypertension where previously hypertension was categorized as a persistent increase in systemic arterial blood pressure where systolic blood pressure ≥ 140 mmHg or diastolic blood pressure ≥ 90 mmHg. Therefore, the definition changes based on the AHA guidelines that define hypertension occurs when systolic blood pressure is ≥ 130 mmHg or diastolic blood pressure ≥ 80 mmHg.

If hypertension is not treated immediately, it will cause complications, including stroke and coronary heart disease, where stroke and coronary heart disease account for about 9.4% of deaths worldwide each year. This complication is mostly experienced by the elderly. This is due to the aging process of the elderly (Indonesian Ministry of Health, 2014).

Another study conducted by (Surmarliyah & Nasrullah, 2018) on the effect of autogenic relaxation techniques on blood pressure levels showed a significant effect on blood pressure in patients with hypertension. Autogenic relaxation therapy carried out for ± 10 minutes scientifically has a physiological impact on the body. Relaxation effectively reduces muscle tension, increases well-being, and reduces symptomatic stress in individuals experiencing various situations (Mardiono, 2018).

From the above explanation, we can see that autogenic relaxation affects a patient's blood pressure changes, both systolic and diastolic. The advantage of Autogenic Relaxation itself is that it is easy to arrange anywhere without spending a lot of money. Therefore the author is interested in analyzing the effect of autogenic relaxation on blood pressure changes in hypertensive patients.

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METHODS

This study is a meta-data analysis using a literature review to explore and examine the benefits of applying autogenic relaxation therapy towards the changes in blood pressure in hypertensive patients. A literature review is a synthesis of primary research studies that presents a specific topic with a detailed and clear clinical question formulation. An explicit and reproducible search method involves a critical review process in selecting studies and elaborating the results and implications. Sources in conducting this review were taken in June 2020. The data taken comprises of secondary data where the data taken has been recorded in journals or books. The search for the study used Science Direct and Google Scholar in the form of research journals. Search for articles or journals uses keywords and boolean operators (AND, OR NOT or AND NOT), which are used to expand or specify a search, making it easier to determine which articles or journals are used. Keywords in the literature review are autogenic relaxation, blood pressure, and hypertension.

In the early stages of searching for journals, 1,242 journals were found from 2010 to 2020 that had not been explored for the compiled journals' relevance, and there were only 11 journals relevant to the research objectives.

In this study, the inclusion criteria were journals published from 2010 to 2020, journals with quantitative studies with the target respondents being patients with hypertension and only discussing autogenic relaxation techniques. Simultaneously, the exclusion criteria in this study were research journals conducted on non-hypertension patients and those outside intervention research.

This study was analyzed by using a narrative method by grouping similar extracted data according to the measured results to answer the objectives of the research. Empirical journals that match the inclusion criteria were then collected, and a journal summary was made, including the name of the researcher, the year the journal, the country of the study, the title of the study, the method, and a summary of the results or findings.

RESULT

1. Characteristics of the Study

Based on the journals that the authors collected, several journals used pre-experimental and quasi-experimental research designs, from 11 journals, 4 journals used pre-experimental research designs and 7 journals used quasi-experimental research.

Journals Analysis on the Effect of Autogenic Relaxation Therapy on Blood Pressure Changes in Hypertensive Patients

Authors and year	Study design, Sampling, Variable, Instrument, Analysis	Outcome of Factors Analysis	Summary of Result
(Darmawan & Nugroho, 2017)	Design: Pre-experiment with the One Group Pre-Test-Post-Test design Sample: Stratified Sample. A sample of 30 respondents Variable: Effect of autogenic relaxation therapy on changes in hypertensive blood pressure Instrument: sphygmomanometer Analysis: Analysis using the Simple Paired t-Test and Independent Sample T-test	Age, Sex	There was an effect of autogenic relaxation on systolic and diastolic blood pressure.

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(Arif et al., 2019)	Design: pre-experiment with the One Group Pre-Test-Post-Test Design approach Sample: The samples were all people in Kenagarian Simpang Sugiran, Guguak District. Variable: Intervention of autogenic relaxation techniques in hypertensive patients Instrument: sphygmomanometer Analysis: Analysis using the paired t-test for normality	Sex, occupation	There was an effect of autogenic relaxation on systolic and diastolic blood pressure.
(Istianah & Hendarsih, 2015)	Design: Quasi Experiment, using Non-Equivalent Control Group design with pre and post test Sample: Purposive sampling. 30 samples were in the intervention group and another 30 in the control group Variable: Autogenic relaxation to reduce blood pressure and anxiety levels in hypertensive patients Instrument: sphygmomanometer Analysis: Wilcoxon Test and Mann Whitney Test	Sex, age	The results showed that autogenic relaxation had an effect on reducing blood pressure and anxiety levels in patients with essential hypertension
(Ekarini et al., 2018)	Design: Quasi-experimental pre-posttest group design Sample: Purposive sampling, the number of samples were 58 respondents Variable: Autogenic relaxation of anxiety levels and changes in blood pressure in patients with a history of hypertension Instrument: sphygmomanometer Analysis: Paired T-test	Age	The results showed that there was an effect of autogenic relaxation on systolic and diastolic blood pressure.
(Surmarliyah & Nasrullah, 2018)	Design: Pre-Experimental using pre and posttest design Sample: Patients in the hospital Variable: Lowering Blood Pressure with Autogenic Relaxation and Guided Imagery in Hypertensive Patients Instrument: Sphygmomanometer Analysis: Wilcoxon test	Age	The results showed that autogenic relaxation was significant in lowering blood pressure
(Mardiono, 2018)	Design: Quasi experiment with pre and posttest only design approach Sample: The samples in this study were accidental sampling Variable: The effect of autogenic relaxation on lowering blood pressure in hypertensive patients Instrument: Sphygmomanometer Analysis: Dependent T-Test	Age, sex	The study found that there was an effect of autogenic relaxation on reducing blood pressure in hypertensive patients

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(Irmayanti et al., 2019)	Design: Pre-Experimental using one group pretest - posttest design Sample: Researchers used consecutive sampling technique with a sample size of 15 respondents who were given the same treatment and measurements Variable: Effect of autogenic relaxation therapy in people with type II diabetes mellitus with hypertension Instrument: Sphygmomanometer and glucose auto-check Analysis: Paired T-test	Age, sex	There was an effect of giving autogenic relaxation therapy on blood glucose levels and blood pressure in type 2 diabetes mellitus patients with hypertension.
(Priyo et al., 2017)	Design: Quasi-experiment with one group pre-posttest design Sample: Purposive sampling method. The numbers of samples used were 20 respondents. Variable: Autogenic relaxation to reduce blood pressure and headache in hypertensive elderly Instrument: Sphygmomanometer Analysis: Test dependent sample T Test	Age, sex	There was a difference in the effect of systolic and diastolic pressure after the intervention
Magda Lasmaria (2016)	Design: Quasi-experimental, namely one group pre-posttest design Sample: The sample for this study were 30 elderly people who suffered from hypertension according to the sample criteria with the Slovin formula Variable: Autogenic relaxation to reduce high blood pressure Instrument: Sphygmomanometer Analysis: dependent t-test	Age	There was a difference in the effect of systolic and diastolic pressure after the intervention
(Haryani & Marleni, 2019)	Design: quasi-experimental pretest and posttest control group design Sample: The samples used in this research were all hypertension patients, 21 respondents with purposive sampling technique Variable: Autogenic relaxation to reduce blood pressure in hypertensive patients Instrument: Sphygmomanometer Analysis: Wilcoxon test	Occupation, age, sex	The study found that there was an effect of autogenic relaxation on reducing blood pressure in hypertensive patients
(Khare et al., 2016)	Design: Research design was quasi-experimental with pre- and post-tests with control group Sample: The researchers took samples with inclusion criteria by Simple Random technique. sample consisted of 60 respondents Variable: Independent variable was autogenic relaxation and aerobic	Gender, Age	The study of effects of Aerobic exercises versus autogenic relaxation in hypertensive patients thus concludes that both aerobic exercises as well as autogenic relaxation techniques are useful in lowering Blood Pressures, although Autogenic Relaxation

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	exercises, dependent variable was hypertension Instrument: Sphygmomanometer Analysis: was analyzed by paired t-test statistic	showed slower and gradual effects to gain benefits.

2. Characteristics of Respondents

Based on the 11 journals that have been collected, the authors examined the journals and found that the characteristics of the respondents in these journals varied from gender, age and occupation. From the journals that have been reviewed, males were the most suffering from hypertension, the average age is from early adulthood to late-elderly with types of occupation such as entrepreneurship and employees.

3. Effect of Autogenic Relaxation on Changes in Blood Pressure

Based on the journals that the authors compiled, all journals stated that autogenic relaxation affected changes in blood pressure, as evidenced by the results of statistical tests from all journals collected by the author that Ha failed to be rejected and Ho failed to be accepted, so there was an effect on autogenic relaxation therapy on changes in blood pressure.

DISCUSSION

Relaxation is a condition where a person feels free mentally and physically from anxiety and stress. Relaxation techniques aim to control themselves when there is a sense of anxiety and stress that makes any individuals feel uncomfortable. The health benefits of deep psychological relaxation are that it allows the body to channel energy for recovery and provides respite for stress caused by habitual patterns. Autogenic relaxation is one way to make it easier for people to deal with high blood pressure more effectively and efficiently to create a relaxed state through autogenic relaxation to control the nervous system, which can ultimately lower blood pressure (Darmawan & Nugroho, 2017). Autogenic relaxation therapy can reduce systolic and diastolic blood pressure by increasing the flow of good hormones throughout the body and stimulating the parasympathetic nervous system, which makes the brain order the regulation of renin-angiotensin in the kidneys, which regulates blood pressure (Watanabe, 2016 in Haryana & Marleni, 2019).

Based on the 11 studies that have been reviewed, it is evident that the entire autogenic relaxation study affects lowering blood pressure. Darmawan & Nugroho's research (2017) entitled The Effect of Otogenic Relaxation Therapy on Changes in Hypertensive Blood Pressure in the elderly health center in Jabon Village, Jombang District, Jombang Regency, proves that the patient's blood pressure before relaxation is at average systolic pressure (170.50 mmHg) and diastole (84 , 30 mmHg), after autogenic relaxation, there was a decrease in the mean systolic pressure (155.10 mmHg) and diastole (81.60 mmHg).

A significant difference in systolic blood pressure among the respondents indicates that autogenic relaxation is reasonably effective in reducing blood pressure when a contraction occurs through the semilunar valves of the aorta and lungs. After passing through the pulmonary valve, the blood will go to the lungs, which will then return to the heart. Meanwhile, after passing through the aortic valve, blood will flow throughout the body and then back to the heart through the venous return. This relaxation is quite effective for adulthood, as indicated by a significant relationship because, with increasing age (aging), the blood flow throughout the body also decreases due to more light and moderate activity. By being given autogenic relaxation exercises, it helps adult respondents to do exercises that

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are tailored to their abilities. They can be done in any position, whether sitting, standing, or lying on the bed (Ekarini et al., 2018).

This is in line with Grenberg's (2002) theory (Setyawati, 2010), which states that autogenic relaxation will stimulate the parasympathetic nervous system, which makes the brain order renin-angiotensin regulation in the kidneys so that it helps maintain blood pressure within normal limits, by doing autogenic relaxation techniques it is hoped that it can help to stabilize blood pressure.

Autogenic relaxation will help the body carry commands through auto-suggestion to relax to control blood pressure, heart rate, and body temperature. A calm, light, warm sensation that spreads through the body is a noticeable effect of autogenic relaxation. The changes that occur during or after relaxation affect the work of the autonomic nerves. The emotional response and calming effect created by this relaxation switch the dominant sympathetic physiology to the parasympathetic system dominant (Dermawan & Nugroho, 2015 in Haryana & Marleni, 2019).

In autogenic relaxation, the main recommendation is self-surrender, allowing various body areas (arms, hands, legs, and feet) to become warm and heavy. These warm and heavy sensations are caused by a shift in blood flow (from the center of the body to the desired body area), which acts as an internal message, soothing and relaxing the surrounding muscles (Widyastuti, 2004).

Autogenic relaxation will help the body carry commands through auto-suggestion to relax to control respiration, blood pressure, heart rate, and body temperature. Visual imagination and verbal mantras that make the body feel warm, heavy, and relaxed are the standards for autogenic relaxation exercises (Varvogli, 2011). According to Oberg (2009), The sensation of calm, light, and warm that spreads throughout the body is the effect that can be felt from autogenic relaxation. The body feels warm, resulted from the peripheral arteries being vasodilated, while the decreased body muscle tension results in a mild sensation. The changes that occur during or after relaxation affect the work of the autonomic nerves. This relaxation changes the dominant sympathetic physiology to the dominant parasympathetic system, leading to reproducing emotional responses and calming effects (Darmawan & Nugroho, 2017).

Based on theoretical studies and results and discussion, it can be concluded that autogenic relaxation affects gradual changes in blood pressure. This is supported by research, each of which has been studied, that autogenic relaxation therapy can affect blood pressure by reducing the work of the sympathetic nerves, and vice versa, the work of the parasympathetic nerves becomes increased or dominant, causing dilation or vasodilation of blood vessels which in turn can reduce blood pressure.

CONCLUSION

Autogenic relaxation interventions given to hypertensive patients regularly for two to three times a day have shown to provide benefits for blood pressure changes. If this intervention is carried out in conjunction with appropriate collaborative action, it can give maximum results for hypertensive patients.

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