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Effect of Progressive Muscle Relaxation on Blood Pressure and Sexual Quality of Life in Hypertensive Patients

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ABSTRACT

Increased blood pressure and decreased quality of sexual life are often found in patients with hypertension. Hypertension that occurs in the long term and continuously can trigger strokes, heart attacks, heart failure, and is the main cause of chronic kidney failure. The effect of Progressive Muscle Relaxation is a relaxation technique and non-pharmacological therapy that can lower blood pressure and improve the quality of sexual life in hypertensive patients. The purpose of this study was to determine "Progressive Muscle Relaxation on Blood Pressure and Quality of Sexual Life in Hypertensive Patients". The research method is pre-experimental design with a one-group pretest-posttest design. The sample of respondents in this study were 15 people with Accidental Sampling sampling technique. Collecting data using observation sheets and questionnaires. Analyzed by statistical test Paired t-test and Wilcoxon. The results of statistical tests on the average systolic blood pressure 137.60 mmHg and the average diastolic blood pressure 81.40 mmHg before being given therapy with a p-value of 0.001; the average systolic blood pressure was 123.93 mmHg and the average diastolic blood pressure was 76.47 mmHg after being given therapy with a p-value of 0.000; the average quality of sexual life for men was 74 and the average quality of sexual life for women was 42.80 before being given therapy with a p-value of 0.225; the average quality of sexual life for men is 77 and the average quality of sexual life for women is 49.40 after being given therapy with a p-value of 0.135.

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INTRODUCTION

Hypertension or high blood pressure is abnormal blood pressure in the arteries continuously for more than one period. According to WHO, the blood pressure limit that is still considered normal is 140/90 mmHg, while blood pressure >160/95 mmHg is declared as hypertension. Blood pressure between normal and hypertension is called threshold hypertension. The WHO limit does not discriminate between age and sex (WHO, 2013). Based on data from the World Health Organization

(WHO), it is estimated that around 600 million people suffer from hypertension worldwide, with details of 3 million deaths each year. In 2013 WHO stated that hypertension contributed 7% of the world's disease burden and resulted in 17 million deaths per year. The prevalence of hypertension aged 18 years in the world is 22%. In Southeast Asia, the prevalence of hypertension is 24.7% with the rate by sex being higher for men at 25.3% and in women 24.2% (WHO, 2013).

According to Basic Health Research (Riskesdas) data in 2018 that the prevalence of hypertension in Indonesia is 34.1%. The prevalence of hypertension in Indonesia has increased from 2013 which only reached 25.8%. North Sulawesi Riskesdas data in 2018 related to the prevalence of hypertension based on measurements in residents over 18 years is 33.21% or 10,913 people. Based on the gender characteristics of men with hypertension patients based on doctor's diagnosis as many as 18.01% or 4,788 people and women amounting to 24.54% or 6,125 people. And data on hypertension diagnosed by doctors by district/city, especially the city of Manado, amounted to 23.5% or 1,541 people (Riskesdas North Sulawesi Province, 2018).

Chronic diseases such as systemic hypertension and antihypertensive drug therapy can contribute to sexual dysfunction (Kloner RA, Reffelmann T, 2006). Systemic hypertension can cause various functional and structural disorders, such as vascular disorders, which may consequently lead to sexual dysfunction due to its negative effects on the genitals and other related organ systems (Kütmeç C, Yurtsever S, 2011).

The relationship between one physiological variable, blood pressure, and sexual dysfunction in women is unclear, with some recent studies (Duncan L.E, et., 2000, Doumas M, et al, 2006), but not all (Spatz, et al. , 2013) found that women with hypertension were more likely to report sexual dysfunction than women who did not suffer from hypertension. The relationship between blood pressure and sexual dysfunction in women is biologically plausible given the assertion that sexual dysfunction in women is influenced by vascular factors, such as: increased blood pressure can result in reduced nitric oxide release, which can lead to endothelial dysfunction, which in turn can lead to reduced tissue relaxation. muscle.

Sexual function can be disrupted due to the impact and influence of chronic diseases such as cancer and its therapy, non-communicable or degenerative diseases such as heart disease and diabetes. Identification of sexual problems is one of the nurse's roles in maintaining and improving or improving the patient's general health, well-being, and quality of life (Afiyanti Yati, et al., 2020). Among the relaxation methods, the progressive muscle relaxation technique is the easiest to learn and do. These interventions are inexpensive, readily available, self-induced by the patient and free of side effects. It is a systematic technique for reducing stress and achieving a state of deep relaxation. This technique increases immunity and a sense of well-being through the release of endorphins. In the end, the improvement of adaptive function can be realized. Clients with anxiety, depression, stress, tension headaches, insomnia, muscle spasms; low back pain, fatigue, intestinal irritation and hypertension are among them, which can achieve positive results using this technique (Jeong I, 2004., Krupifiska K & Kulmatycki L, 2014)

RESEARCH METHOD

The design in this study was a pre-experimental design with a one-group pretest-posttest design. This study reveals a causal relationship, where this study was conducted on one group of subjects, before treatment and after treatment. It aims to see the difference in blood pressure and quality of sexual life before progressive muscle relaxation and after progressive muscle relaxation (Nursalam, 2016). The sampling technique in this study using non-probability sampling with accidental sampling is a sampling technique by selecting a sample among the population that is in accordance with what the researcher wants so that the sample can represent previously known population characteristics (Nursalam, 2016). As for the instrument in this study for blood pressure

using SOP and observation sheets, for Progressive Musscle Relaxation using SOP and for sexual quality of life using SQOL-F and SQOL-M questionnaires.

RESULTS AND DISCUSSIONS

1. Univariate Analysis

Table 1. Frequency Distribution of Respondents by Age, Gender, Smoking History

NNo	Category	Frequency	Percentage (%)
1	**Age**		
	Late Adult	9	60
	Elderly	6	40
2	**Gender**		
	Woman	7	46,7
	Man	8	53,3
3	**Smoking History**		
	Not	6	40
	Yes	9	60
4	**Body mass index**		
	Thin	1	6,7
	Normal	8	53,3
	Fat	6	40
5	**Drugs Taken**		
	Amlodipine	8	53,3
	Captopril	5	33,3
	Nifedipine	1	6,7
6	**Frequency of taking medication**		
	1x a day	13	86,7
	2x a day	2	13,3
7	**Drug-Drinking Discipline**		
	Yes	5	33,3
	Not	10	66,7
8	**Marital status**		
	Not married yet	1	6,7
	Marry	12	80
	Widow	2	13,3
	Total	**15**	**100**

Source: Primary Data 2021

Table 2. Frequency Distribution Table of Respondents Based on Average Systolic and Diastolic Blood Pressure Pre (Before) and Post (after) given Progressive Muscle Relaxation (n=15)

Intervention Group	Measurement Time	Systolic Blood Pressure				Diastolic Blood Pressure				
			Mean	SD	Min-Max	95% CI		Mean	SD	Min-Max	95% CI
	T_0	5	137,60	19,052	112-190	127,05-148,15	5	1,40	1,701	70-100	76,03-86,77

Progressive Muscle Relaxation	T_1	5	29,93	4,489	110-165	121,91-137,96	5	6,47	1,242	63-95	71,35-81,58

Source: Primary Data 2021
Information :
*T0 = before intervention;
T1 = after intervention;

Table 3. Frequency Distribution Table of Respondents Based on Quality of Life Pre (Before) and Post (after) given Progressive Muscle Relaxation (n=15)

Intervention Group	Measurement Time	*SQoL-F*					*SQoL-M*				
			Mean	SD	Min-Max	95% CI		Mean	SD	Min-Max	95% CI
Progressive Muscle Relaxation	T_0	5	4	5,568	69-80	60,17-87,83	5	42,80	13,084	25-59	26,55-59,05
	T_1	5	7	4,359	72-80	66,17-87,83	5	49,40	6,348	44-60	41,52-57,28

Source: Primary Data 2021
Information :
*T0 = before intervention;
T1 = after intervention;

2. Blood Pressure Bivariate Analysis

a. Blood Pressure Variable Data Normality Test

Table 4. Normality Test of Systolic and Diastolic Blood Pressure Data on 15 Respondents Before and After 4 Weeks given Progressive Muscle Relaxation Intervention (n=15)

Variable	Measurement Time	*Descriptive*	*Shapiro-Wilk*
		Mean	*p value*
Systolic Blood Pressure	T_0	137,60	0,043
	T_1	129.93	0,139
Diastolic Blood Pressure	T_0	81,40	0,127
	T_1	76,47	0,440

Source: Primary Data 2021
Information :
*T0 = before intervention;
b. T1 = after intervention;
b. Wilcoxon Bivariate Test

Table 5. Results Analysis of the Wilcoxon Systolic Blood Pressure Test Before and After 4 Weeks Given Progressive Muscle Relaxation Intervention (n=15)

	Median (Minimum-Maximum)	*p-value*
Systolic Blood Pressure Pre	130 (112-190)	0,001
Post Systolic Blood Pressure	130 (110-165)	

Wilcoxon test, 14 people systolic BP decreased, 1 person systolic BP remained

c. Bivariate Paired T-Test

Table 6. Results Analysis of Paired T-Test Diastolic Blood Pressure Before and After 4 Weeks Given Progressive Muscle Relaxation Intervention (n=15)

Variable	Mean	Difference	*p-value*
Systolic Blood Pressure Pre	81,40	4,93	0,000
Post Systolic Blood Pressure	76,47		

Paired t-test; difference between after and before

3. Bivariate Analysis of Sexual Quality of Life

a. Normality Test of Sexual Quality of Life Variable Data

Table 7. Normality Test of Sexual Life Quality Data (SQoL-F & SQoL-M) on 15 Respondents Before and After 4 Weeks Given Progressive Muscle Relaxation Intervention (n=15)

Quality of Life Variable	Measurement Time	*Descriptive* Mean	*Shapiro-Wilk* *p value*
SQoL-F	T_0	74	0,702
	T_1	77	0,220
SQoL-M	T_0	42,80	0,857
	T_1	49,40	0,151

Source: Primary Data 2021

Information :

*T0 = before intervention;

T1 = after intervention

b. Bivariate Paired T-Test

Table 8. Results Analysis of Paired T-Test Sexual Quality of Life (SQoL-F) Before and After 4 Weeks Given Progressive Muscle Relaxation Intervention (n=15)

	Mean	Difference	*p-value*
Quality of Sexual Life (SQoL-F) Pre	74	3	0,225
Quality of Sexual Life (SQoL-F) Post	77		

Paired t-test; difference between after and before

Table 9. Results Analysis of Paired T-Test Sexual Quality of Life (SQoL-M) Before and After 4 Weeks Given Progressive Muscle Relaxation Intervention (n=15)

	Mean	Difference	*p-value*
Quality of Sexual Life (SQoL-M) Pre	42,80	3,2	0,135
Quality of Sexual Life (SQoL-M) Post	49,40		

Paired t-test; difference between after and before

A decrease in systolic blood pressure was also found in previous studies using the Progressive Muscle Relaxation intervention (Mareta A, 2019) the results were that the average systolic blood pressure in the two groups of elderly before receiving therapy was 159.95 mmHg which was included in the level 1 hypertension. This is in line with previous research which concluded that blood pressure decreased after being carried out by Samsuriyana and Ayu in 2020 where from the results of the study it was found that systolic blood pressure decreased by 22 mmHg and diastolic blood pressure decreased by 5.34 mmHg. According to Fadli's research (2018), there is an effect of progressive muscle relaxation on changes in blood pressure in hypertensive patients with p value = 0.001. This therapy provides benefits for nursing actions for patients with hypertension because progressive muscle relaxation is very useful in lowering blood pressure, both systolic and diastolic blood pressure. Researchers argue that when exercising in a calm, relaxed and concentrated state for 15 minutes, there is a decrease in the secretion of CRH Corticotropin Releasing Hormone and ACTH (Adrenocorticotropic Hormone) in the hypothalamus which results in a decrease in sympathetic nerve activity resulting in the release of adrenaline and non-adrenaline resulting in a decrease heart rate, blood vessels dilate, blood vessel resistance decreases and a decrease in heart pump so that the arterial blood pressure of the heart decreases

In women with hypertension, there are % experiencing a good quality of sexual life with changes in several factors that affect sexual life, such as age after menopause so that there is discomfort in sexual intercourse but it is not considered a serious problem. For the implementation of progressive muscle relaxation, it is not necessary there is an influence on the quality of women's sexual life. The lack of quality data on sexual health and its relationship to hypertension and its treatment reduces the ability of doctors to advise patients about medication side effects and potential sexual problems (Erica S. Spatz, et al. 2013). On the quality of sexual life of men with hypertension, the assessment is quite significant on the issue of concern with future sexual life problems. With two visits to assess the respondent's sexual life, there are several things that also reduce the quality of sexual life such as smoking and of course medication that can affect it.

For quality of sexual life in men with hypertension, it is known that high blood pressure damages blood vessels, reducing blood flow throughout the body, including the penis. Hardened and narrowed blood vessels make it difficult for blood to flow to the penis before intercourse (American Heart Association, 2016). Sexual function has shown an important role to accurately estimate the prevalence and incidence of sexual dysfunction. Understanding sexuality is a biological function of humans not limited to genitals, but on the physical as a whole is important, because it has an undeniable importance in the quality of life of individuals (Carterio M.H, et al. 2016).

CONCLUSION

This study can be used as a nursing intervention for hypertensive patients to help lower blood pressure. For respondents, it can help lower blood pressure in hypertensive patients. For further researchers, it can provide additional literature studies in increasing knowledge, skills and care for hypertensive patients.

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