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THE EFFECT OF SELF-ACUPRESSURE ON REDUCING BLOOD PRESSURE, HEADACHE AND SLEEP QUALITY DISORDERS IN HYPERTENSIVE PATIENTS

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ABSTRAK

Hipertensi masih menjadi permasalahan kesehatan utama di Indonesia. Berbagai upaya untuk mengatasi permasalahan hipertensi telah banyak dilakukan, baik penatalaksanaan farmakologi maupun non-farmakologi. Sebuah terapi yang sesuai dengan kebiasaan atau budaya yang dianut penderita tentu akan lebih mudah diterapkan dan dipatuhi oleh mereka. Oleh karena itu penelitian ini bermaksud menganalisis pengaruh *self acupressur* terhadap tekanan darah, nyeri kepala dan kualitas tidur penderita hipertensi. Metode penelitian yang digunakan adalah *quasy experiment, single group pre-posttest design*. Sampel dalam penelitian ini adalah penderita hipertensi yang sesuai dengan kriteria inklusi dan eksklusi di Puskesmas Wonokerto Kabupaten Pekalongan. Analisis data yang digunakan adalah analisis univariat dan bivariat. Analisis bivariat menggunakan teknik uji beda kelompok berpasangan. Hasil penelitian menunjukkan bahwa terdapat pengaruh *self-acupressur* dalam menurunkan tekanan darah sistolik (*p value:0.004*), skala nyeri kepala (*p value:* 0,001) dan penurunan skor gangguan kualitas tidur (*p value:* 0,000). Pemijatan pada titik-titik akupresur memberikan efek melancarkan aliran darah, menstimulasi hormon endorphin dan memberikan efek relaksasi sehingga dapat menurunkan tekanan darah, skala nyeri kepala dan skor gangguan kualitas tidur. Rekomendasi untuk penelitian selanjutnya adalah menambahkan kelompok control dan atau membandingkan dengan tehnik terapi komplementer mandiri yang lainnya.

Keyword: Hipertensi; Tekanan Darah; Nyeri Kepala; Kualitas tidur; *Self Acupressur*

ABSTRACT

Hypertension is still a major health problem in Indonesia. Various efforts to overcome the problem of hypertension have been made, both pharmacological and non-pharmacological treatments. A therapy based on the patient's habits or culture will certainly be easier to implement and obey by. Therefore, this study aims to analyze the effect of self-acupressure on blood pressure, headache, and sleep quality of hypertensive patients. The research method used is a quasi-experiment, single-group pre-post-test design. The sample in this study were hypertensive patients who fit the inclusion and exclusion criteria at Wonokerto Health Centre, Pekalongan Regency. The data analysis used was univariate and bivariate analysis. Bivariate analysis used paired group t-test technique. The results showed that there was an effect of self-acupressure in reducing systolic blood pressure (p-value: 0.004), headache pain scale (p-value: 0.001), and decreased sleep quality disorder score (p value: 0.000). Massaging at acupressure points has the effect of improving blood flow, stimulating endorphin hormones and providing a relaxing effect so that it can reduce blood pressure, headache pain scale and sleep quality disturbance scores. Recommendations for future research are to add a control group and/or compare it with other independent complementary therapy techniques.

Keywords: Hypertension; Blood Pressure; Headache; Sleep quality; Self Acupressure

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1. INTRODUCTION

Hypertension (high blood pressure) is when the pressure in the blood vessels is too high (140/90 mmHg or higher). It is common but can become serious if left untreated. People with high blood pressure may not feel any symptoms. The only way to find out is to get your blood pressure checked. In Indonesia, hypertension is still a disease with a high prevalence. According to WHO, in 2019, 40.3% [1]. The number is quite high where out of 10 people there are 4 people experiencing hypertension. Hypertension occurs mostly in the male sex with age 19-84 years old elderly with the age group of young elderly, female sex with grade 2 hypertension, and a history of comorbid diseases of diabetes mellitus, stroke and have high cholesterol values, and patients with a family history of hypertension are 5 times more likely to experience complications than those who do not have a family history of hypertension, patients who have sedentary physical activity are 4 times more likely to experience complications than those who have strong physical activity, and patients who have a high waist circumference are 7 times more likely to experience complications than those who have a low waist circumference [2,3]. Types of complications of hypertension include cardiovascular disease, cerebrovascular disease, renal disease and peripheral vascular disease. A study showed the most common complications were cases of AMI (Acute Myocardial Infarction), heart failure and angina or chest pain [4].

Various treatments have been done to treat hypertension, both pharmacological treatment and non-pharmacological treatment. Non-pharmacological treatment or often referred to as complementary or alternative medicine is preferred by most people due to people's perceptions of the side effects of chemical drugs and their economic conditions.[5,6]. There are various types of complementary medicine including biologically based therapies (diet and nutrition therapy), physical manipulation therapies (massage, chiropractic), energy therapies (acupuncture and acupressure) and mindfulness therapies (reiki, yoga) [7]. Complementary therapy is a companion or complementary therapy in conventional medicine that can be given together to overcome patient problems. [8]. Complementary therapies focus on the root cause of the problem and have a slow but sure therapeutic reaction and are suitable for cases of chronic diseases [9].

Some complementary interventions have been shown to be effective for hypertension, but sometimes these interventions are not compatible with patients' daily habits [10–13]. Thus, patients cannot immediately adapt to this type of therapy. Acupressure is a type of complementary therapy that Indonesians often refer to as reflexology. Indonesian people are very familiar with this treatment technique. Some studies on acupressure are effective for lowering blood pressure, but not many studies have examined the benefits of acupressure to treat other symptoms that appear in hypertensive patients including headache and sleep quality[14–16]. Therefore, this study aims to examine the effect of self-acupressure on blood pressure, headache and sleep quality in hypertensive patients at Wonokerto Health Centre, Pekalongan Regency..

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2. METHOD

Reaserch Design

This research is a quantitative study with a Quasy Experiment single group pre post-test design. This study uses one group that is given an intervention and then measured before and after the intervention with the aim of knowing the effect of an intervention[17].

The intervention in this study is self-acupressure performed by hypertensive patients. Researchers will measure blood pressure, pain scale and sleep quality scores of hypertensive patients before and after the specified intervention period.

This research design can be illustrated as follows:

P1----------I----------P2

Caption:

P1: Blood pressure measurement, headache pain scale and sleep quality score before self-acupressure intervention

I: self-administered acupressure action

P2: Blood pressure measurement, headache pain scale and sleep quality score after self-acupressure intervention

Participants

The population in this study consisted of patients with hypertension at Wonokerto Health Centre, Pekalongan Regency. While the sample in this study was the entire population who met the inclusion and exclusion criteria is hypertensive patients with : systole pressure not more than 180mmHg, do not take antihypertensive drugs, not taking antihypertensive herb medicine, members of the PROLANIS program at wonokerto public health center and agree to be research participants by signing informed consent. While the exclusion criteria is the participants who do not follow the intervention until completion and who experience complications of hypertension (stroke, heart failure, kidney failure). The number of participants in the study were 16 participants who met the inclusion and exclusion criteria.

Research Instruments

The instruments used in this study consisted of demographic questionnaires, blood pressure measuring devices, head pain scale questionnaires, and sleep quality questionnaires.

The demographic questionnaire consists of initials, name, gender, occupation, marital status, living status (alone or with family), ethnicity, religion, and education level. While the blood pressure measuring device uses an automatic sphygmomanometer with the OMROM HEM-7121 brand, where the results in the form of systole pressure, diastole and pulse frequency will be recorded on the pre-test and post-test blood pressure sheets. The Numerical Rating Scale measures the pain scale with a range of 1-10. Measurement of sleep quality is measured by the Pittsburgh Sleep Quality Index (PSQI) questionnaire.

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Intervention

The interventions carried out in this study were:

1. The researcher measured blood pressure, headache pain scale and sleep quality score.
2. Education and self-acupressure training (Detailed training protocols can be found at Supp file 1)
3. Self-acupressure home perform by subject (Detailed intervention protocols can be found at supp file 2)
4. At week 9, researchers re-measured blood pressure, headache pain scale and sleep quality score.
5. The researcher controls self-acupressure practice through the weekly WhatsApp group with the help of the nurse manager.

Outcome measure

This study outcomes were Blood Pressure (SBP and DBP), pain scale of headache and sleep quality score. SBP and DPB were measured in a sitting position on the left arm using an automatic blood pressure meter. Measurement of headache pain scale using numeric rating scale, participants were asked and asked to point to the number that corresponds to the condition felt. while the measurement of sleep quality score was conducted by interview using PSQI instrument. The normal reference for blood pressure in adults is 120/80 mmHg. The pain scale score is from 0 to 10 while the sleep quality score is categorized as poor if the score is <5 and good if the score is >5.

Statistical Analysis

Data analysis used in this study used univariate analysis and bivariate analysis. Univariate analysis aims to describe the demographic characteristics of respondents, pre and post-test systole and diastole blood pressure, pre and post-test head pain scale and pre and post-test sleep quality scores of respondents. Data will be presented in the form of frequency distribution tables, and average or mean. While bivariate analysis aims to test the effect of self-acupressure intervention on blood pressure, headache pain and sleep quality. if the p value <0.05, it can be concluded that it has a significant effect.

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3. RESULTS

Table1 shows that most of the participants in this study were female with an average age of 58 years, with the youngest being 48 years old and the oldest being 70 years old. The majority of the education level is elementary school, which is 81.3%.

Table 1. Characteristics of participants

Variables	f	%	Mean, Min-Max	SD
Sex				
- Male	4	25		
- Female	12	75		
Age			58,1875, 48-70	5,54038
Level of Education				
Primary School	13	81,3		
Junior High School	2	12,5		
Senior High School	1	6,3		

Table 2. Mean systole and diastole blood pressure before and after intervention (n=16)

Variables	Mean±SD		Difference	p value
	Before	After		
Sistole (mmHg)	145±17,512	137,5±12,910	7,5	0.004
Diastole (mmHg)	88,75±7,188	87,5±5,77	1,25	0.157
Headache pain scale	5, 38±2,849	3,44±2,190	1,94	0.001
Sleep quality scores	10,75±2,646	7,25±1,983	3,5	0.000

Table 2. shows that the mean systole blood pressure before and after self-acupressure was 145 mmhg and 137.5 mmHg. There was a decrease of 7.5 mmHg in the mean systole blood pressure observed, while the decrease in the mean diastole was 1, 25 mmHg. While the mean headache pain scale and sleep quality score both decreased by 1, 94 and 3,5.

Table 2. also shows that there is a significant effect in reducing systolic blood pressure, headache pain scale and sleep quality score, but there is no statistically significant effect on diastolic blood pressure.

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4. DISCUSSION

Participants in this study were mostly women with an average age of 58 years, the youngest age was 48 years and the oldest was 70 years. The majority of their education level was elementary school, 81.3%. Wonokerto, an area in Pekalongan Regency, is a north coastal area with education levels that are mostly primary and secondary education. A study conducted in Palangkaraya showed that there was a relationship between age, gender and education level to the incidence of hypertension, 91.7% of female respondents experienced more hypertension than male respondents, while 59.3% of respondents were less than 59 years old. Women entering menopause tend to have a higher risk of suffering from hypertension[19].

In general, a person's 'blood pressure' or systemic arterial pressure refers to the pressure measured in the large arteries in the systemic circulation. This figure is divided into systolic blood pressure and diastolic blood pressure. Blood pressure is traditionally measured using auscultation with a mercury tube tensiometer. Blood pressure is measured in millimeters of mercury and expressed in systolic pressure over diastolic pressure. Systolic pressure refers to the maximum pressure in the large arteries when the heart muscle contracts to push blood around the body. Diastolic pressure describes the lowest pressure in the large arteries during relaxation of the heart muscle between heartbeats.

Arterial pressure is directly related to cardiac output, arterial elasticity, and peripheral vascular resistance. Blood pressure is very changeable and can be affected by many activities. Maintaining blood pressure within normal limits is very important. Blood pressure between 140/80 mmHg to 159/99 mmHg is classified as stage 1 hypertension. Stage 2 hypertension categorization is pressure between 160/100 mmHg to 179/109 mmHg. Hypertension of urgency describes blood pressure greater than 180/120 mmHg and hypertension of emergency refers to extremely high blood pressure resulting in potentially life-threatening symptoms and end-organ damage. [20]

Self-acupressure can reduce blood pressure with the mechanism of blood flow, massage at certain points in acupressure therapy can stimulate nerve waves so that it can help smooth blood flow so that blood pressure can decrease. [21]

The acupressure points stimulated in this study include LI4 (Hegu)-Large Intestine 4 and PC6 (Neiguan)- Pericardium 6. LI4 located in the webbing between the thumb and index finger and PC6 located three finger-widths above the wrist crease on the inner arm. This point is often used to reduce anxiety, promote relaxation and improve sleep. It can also treat symptoms such as palpitations, chest tightness and emotional imbalance. [22].

The acupressure point for the treatment of Tension Headache (headache pain) is at Feng-Chi point (Gates of Consciousness). Feng-chi located in the hollow between the two tendons at the base of the skull. Use both thumbs to apply firm pressure upward, holding for 1 minute, then release for 30 seconds, repeating for a total of 2-3 minutes. Massage on these points is helpful for the treatment of tension headache pain located at the base of the head, in the neck, or behind the eyes. The patient may begin to breathe easier when these points are massaged, this point can also be used for the treatment of sinus congestion [23]. The point used by the subject to improve

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sleep quality is HT7 (shenmen) - Heart 7. The location of HT7 is on the inner crease of the wrist, in line with the little finger. Applying firm pressure with the thumb for 1-2 minutes on each wrist can calm the mind and reduce anxiety, resulting in better sleep.
Acupressure techniques release neurotransmitters such as serotonin and activate the opioid system. Therefore, by producing body relaxation, it can improve sleep quality. The massage points, especially on the shoulder, neck, or head area itself can produce varying degrees of body relaxation and thus result in a better quality of sleep. In addition, this can be due to the mental effects and emotional effects of massage.

5. CONCLUSION

The results of this study prove that self-acupressure can be useful in reducing systolic blood pressure, reducing headaches, and improving sleep quality in hypertensive patients. This study has limitations, including a research design that does not use a control group, randomization, and a limited number of participants. Nevertheless, this study provides an applicative contribution to the independent alternative treatment of hypertension patients. Future studies are expected to be conducted using a control group or comparing with other self-interventions with randomized methods and with a larger number of participants. Recommendations for future research to consider demographic factors such as age, gender, and severity of hypertension and whether it affects the results in reducing blood pressure, headache pain, and sleep quality.

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