

EFFECT OF *NOSTRIL BREATHING* ON BLOOD PRESSURE IN HYPERTENSION PATIENTS

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ABSTRACT

Hypertension other resulted number death which tall also impact on expensive treatment and care that must be borne by the sufferer. It should be noted that hypertension has an impact on decline quality of human life. If you have high blood pressure however no quick done treatment and control in a manner regular then what happens is that it will have an impact in even serious cases death. Nostril breathing technique is breathing by closing one hole nose in a manner alternate. Nostrils breathing tehniue own benefit that is can strengthen whole system respiratory, overcome stress, lower pressure blood. The purpose of this study was to identify the effect of nostril breathing on blood pressure. This type of research is a quasy experiment using the pre and posttest method without a control group design. The sample in this study was 20 people using a purposive sampling technique. The aspect to be measured in this study is blood pressure. The data obtained from the measurement results twice, namely blood pressure before and after the intervention was given. Statistical analysis used in this study is to use paired t-test. The results showed that the average blood pressure analysis before the nostril breathing intervention was given was (mean : 150.50) , and the average value after the intervention was given (mean : 139.00). The results of the analysis of the effect of nostril breathing on blood pressure using the paired t-test obtained a value of $p = 0.000$ ($p < 0.05$) . Data analysis showed that there were significant differences between blood pressure before and after the intervention.

Keywords: *Nostril Breathing, Blood Pressure, Hypertension*

1. INTRODUCTION

Hypertension is a disease that many people suffer Indonesia usually happen because style life a day day like smoke, often consume food rate the salt which height, lack of physical activity, consuming alcoholic beverages and often stress. Hypertension also estimated as reason various disease heavy along complications. Hypertension generally also without symptoms, some big person no feel whatever though pressure his blood already said far in on normal. Hypertension is reason death after strokes. Hypertension can resulted enhancement number pain and number death (Permata F., Andri et.al, 2021).

World Health Organization data for 2018 shows that 1.13 billion people in the world diagnosed with hypertension. The number of people with hypertension continues to increase every year, it is estimated that by 2025 there will also be 1.5 billion person which suffer disease hypertension and estimated at each the year will there is lots which die consequence hypertension and complications (Anitasari, 2019).

According to the latest Basic Health Research data in Southeast Asia in 2018, the number sufferer hypertension in Indonesia reach 36, increase 34.1 % from year to year. Compared with the 2013 Basic Health Research data, numbers incident This experience enough improvement tall. Asian region Southeast including Indonesia, reported 49.7 % wrong cause of death only one is hypertension (Sarti et.al., 2020). Results research shows that according to the measurement of people's blood pressure Indonesia aged 18 years and over, up to 25.8% of people have pressure hypertension and blood pressure

measurements have increased which significant. The population value over 60 years contributes 25.8 % (Permata F., Andri et.al, 2021).

Hypertension other resulted number death which tall also impact on expensive treatment and care that must be borne by the sufferer. We also need to know that hypertension has an impact on decline quality of human life. If you have high blood pressure however no quick in do treatment and control in a manner regular then what happens is that it will have an impact in even serious cases death.

Nostril breathing technique is breathing by closing one hole nose in a manner alternate. *Nostril breathing* technique own benefit that is can strengthen whole system Respiratory, overcome stress, lower pressure blood, And others. Exercise breathing *nostrils breathing* done with do for 5 minutes (Khayati, Z. , et.al , 2016). *Nostril breathing* technique is done with with method inhale inhale through the right nostril and exhale through hole nose left (Kamath, A., 2017).

Nostril breathing (nasal cycle) can help stimulate nerve main parasympathetic and nerve vagus so that slow down tick heart lowers blood pressure and relaxes the body and mind. Because antihypertension drugs have many side effects and cause complications and high levels of non-compliance, so this study aims to identify the effect of nostril breathing on blood pressure in hypertensive patients.

2. METHODOLOGY

The type of research used in this study was a *quasy experiment* using the pre and posttest method *without a control group design* which aims to

explain the effect of nostril breathing on blood pressure in hypertension patients at Helvetia Medan Health Center. The population in this study were hypertensive patients at the Helvetia Medan Health Center, totaling 76 people. Sampling in this study using a *purposive sampling technique* with a total sample of 20 people. The aspect to be measured in this study is blood pressure, measured using a

sphygmomanometer. The data obtained from the measurement results twice, namely blood pressure before and after the intervention was given. The statistical analysis used in this study was using a *paired t-test*. This study has been reviewed and has received ethics approval from the Research Ethics Committee of Sari Mutiara Indonesia University with decree number: 281/FUSM/VIII/2022

3. RESULT

a. Univariate analysis

Table 1. Characteristics respondents based on age

Gender	f	%
Man	8	40
Woman	12	60
Amount	20	100

Based on table 1, it is known that the gender of the majority of respondents is female, namely 12 people (60%).

Table 2. Characteristics of respondents based on age

	Means	med	Min	Max
Age	46.0	52.5	40	55

Based on table 2, it is known that the average age of the respondents (*mean* : 46 years), the youngest age is 40 years old and the oldest is 55 years old.

Table 3. Measuring blood pressure before and after the intervention

Pressure Blood	n	Means	med	Min	Max
<i>Pretest</i>	20	150.50	142.50	135	180
<i>Posttest</i>	20	139.00	140.00	120	160

Based on table 3 it is known that before the *nostril breathing intervention* was given the patient's average blood pressure (*mean* : 150.50) , after being given *nostril breathing*

b. Bivariate analysis

Table 4. Differences in blood pressure before and after the intervention

Variable	n	Means	SD	t	Sig (2-tailed)
<i>Pretest</i>	10	150.50	14,492	135	
<i>Posttest</i>	10	139.00	11.005	120	0.000

Based on table 4 it is known that the results of the analysis of the average blood pressure before the *nostril breathing intervention* was given was (*mean* : 150.50) , and the average value after the intervention was given was (*mean* : 139.00). The results of the analysis of the effect

of *nostril breathing* on blood pressure using the *paired t-test* obtained a value of *p.value* = 0.000 ($p < 0.05$). Data analysis showed that there were significant differences between blood pressure before and after the intervention.

4. DISCUSSION

a. Characteristics

Based on the results of the study, it was found that the gender of the majority of respondents was female, namely 12 people (60%). The age factor is very influential on hypertension because with increasing age the risk of hypertension becomes higher. The incidence of hypertension, which increases with age , is caused by natural changes in the body that affect the heart, blood vessels and hormones. Hypertension at the age of less than 35 years will increase the incidence of coronary artery disease and premature death (Sundari, L., & Bangsawan, M., 2017).

This research is in line with research conducted by Arum (2019) regarding hypertension in the productive age population (15-64

years) in the region the work of the Jagir Health Center with a total of 36 respondents due to being older than 55 years, women who are more likely to experience hypertension due to woman will experience period menopause. Part big type sex in this study were women, the results obtained were hypertension more common in women than men , group age 40 - 55 year . Age is a non-modifiable risk factor that causes hypertension. As you get older, the risk of getting hypertension is higher. Age is a risk factor for the prevalence of hypertension in Indonesia, which is greater for women (8.6 %) than men (5.8%). After the age of 65 years, the occurrence of hypertension in women is increasing compared to men due to hormonal factors (Pramana 2016).

b. Differences in Blood Pressure before and after being given Nostril Breathing

The results of the analysis of the effect of *nostril breathing* on blood pressure using the *paired t-test* obtained a value of $p = 0.000$ ($p < 0.05$). Data analysis showed that there were significant differences between blood pressure before and after the intervention.

This research is supported by the research of Suranata et al., (2019) that there was a decrease in systolic blood pressure ($p < 0.001$) and diastolic ($p < 0.001$) on a number of time measurement (*time measurements*) after done *nostril breathing* intervention. *Time effect measures* were evaluated in the *post wilcoxon* follow-up test for the significance of changes in blood pressure over time. There is a decrease in systolic blood pressure and diastolic blood pressure so that *nostril breathing* is effective in reducing blood pressure in people with hypertensive, where within 3 days after the intervention was carried out there was a decrease blood pressure.

Another research conducted by Khayati, Z., et.al, (2016) exercise nostril breathing is done by inhaling from one of the nostrils and exhalation is done through different nostrils, repeated for six until five minute. Setiawan, D., (2021). *Nostril Breathing* is done by inhalation with one of the nostrils closed with the thumb and then exhaled through the nostrils which

different with close the nostril using little finger.

Widynanda, S. (2018) explains more carry on that alternate *Nostril breathing* own lots benefit to component physiology, behavioral, and psychological. Study use exercise breathing alternate *nostril breathing* to patient with fail heart show benefit exercise this as supplementary therapy which followed with therapy medical. Exercise breathing this proven capable stabilize symptom fail heart, increase tolerance activity, cardiovascular system endurance, cardiac function, autonomic function, quality life as well as myocardial distress.

Nostril breathing techniques can have an effect on blood pressure because there is a nasal cycle, cerebral dominance and autonomic activity with which the nasal cycle is associated with cerebral dominance. When one nostril dominates so opposite hemisphere lateral will be activated. Breathe through the right nostril through the right spinal cord and connect with the left cerebral hemisphere causes increased stimulation of the system sympathetic nerves to be able to reduce its function where the sympathetic nerves can make veins and arterioles experience vasoconstriction. Meanwhile, breathing through the left nostril through the left spinal and connected direct with hemisphere cerebral right which stimulate work nerve parasympathetic become increase, so that body will experience relaxation. Vasodilation vein and arterioles in

whole system peripheral heart also happen so that the output of the parasympathetic nerves increases and makes heart rate decreases and stimulates the ventricles to decrease the contractions that give rise to the effect of cardiac output decreases so that blood pressure decreases (Umara et al., 2021).

System nerve parasympathetic release neurotransmitters acetylcholine for inhibits sympathetic nerve activity by reducing muscle contractility heart, volume stroke, vasodilation arterioles and vein, then lower pressure blood (Ardy & ecowati ningsih, 2018). This because when one nostril dominates, the contralateral hemisphere is activated. Exhale through the right nostril through the right spine and relate with cleavage brain left cause enhancement stimulation of the sympathetic nervous system, breathing through the nostrils left through the left spine and is in direct contact with the hemispheres the right brain that stimulates the work of the parasympathetic nerves so that the body will experience relaxation. Therefore, breathe through both nostrils or known with technique respiratory hole nose can balancing activity nerve sympathetic and parasympathetic, until stabilize blood pressure (Sofyan et al., 2020). There is a significant difference between blood pressure before and after being given *nostril breathing* in hypertensive patients at the Helvetia Health Center in Medan.

5. CONCLUSION

There is a significant difference between blood pressure before and after being given *nostril breathing* in hypertensive patients at the Helvetia Health Center in Medan.

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