



Original Research

The Effect of Starfruit Juice to Reduce The Blood Pressure In Elderly Patients

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Abstract

Hypertension is classified as a disease that is often called the Silent Killer. Hypertension can attack various ages, including the elderly. Hypertension in the long term will cause various complications. In Treatment of hypertension, many natural plants that can be consumed, one of which is star fruit. Sweet starfruit juice is very useful for lowering blood pressure because of its fiber, potassium, phosphorus and vitamin C content. This study was to determine the effect of starfruit juice on lowering blood pressure in elderly people with hypertension at the integrated service center in the working area of Rejosari Dawe Kudus Public Health Center. This study used a Quasy experiment method with a pre-test-post-test research design with a control group. A sample of 20 people, divided into two groups, namely 10 people in the experimental group and 10 people in the control group. The results of the independent t-test, the results of the posttest systolic blood pressure p value = 0.004, while the diastolic blood pressure posttest p value = 0.014, so it can be seen that the p value <0.05, then H₀ is rejected and H_a is accepted. In this study, it can be concluded that there is an effect of giving star fruit juice on reducing blood pressure in elderly people with hypertension at the integrated service center in the working area of the Rejosari Dawe Kudus Community Health Center.

INTRODUCTION

The process of aging is a process of disappearing slowly the ability of the network to repair itself replace and maintain its normal function.¹ Many elderly people today suffer from several degenerative diseases, namely hypertension. Hypertension is classified as a disease that is often referred to as a silent killer because it can cause the sufferer to die, hypertension does. not immediately kill the sufferer, but hypertension triggers the emergence of a deadly disease. ²

Hypertension in the long term will cause various complications. Extremely high blood pressure can damage the inside of a small artery, possibly blood clots, if this happens it can lead to heart attack, blindness, kidney failure, and stroke. ³

The incidence of hypertension has increased in the world. According to WHO (2013) hypertension kills 9.4 million people in the world every year.³ Based on data sourced from Riskesdas 2016.⁴ The prevalence of elderly hypertension in Indonesia is 45.9% for 55-64 years, 57.6%

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for 65-74 years and 63.8% for > 75 years.⁵ According to the Central Java Provincial Health Office, the number of people at risk, from the results of blood pressure measurements, as many as 1,153,371 people or 12.98% stated hypertension.⁶ From the data from the Kudus Regency Health Office in 2016, there were 451,224 people aged 18 years and over, of the 188,208 people examined, 75,074 were men, (8.26%) had hypertension and (41.71%) were not hypertensive. Of the 105,494 women examined, 10,530 (9.98%) had hypertension and 94,964 (99.8%) did not have hypertension.⁷

To reduce the incidence of hypertension, an approach is needed that is done, namely pharmacologically and non-pharmacologically. The pharmacological approach is to use antihypertensive drugs, while the non-pharmacological approach includes limiting salt intake, quitting smoking, and by using fruit and vegetable juice therapy. One of the fruit juice therapies is the provision of sweet starfruit juice for hypertension sufferers.⁸ This sweet starfruit is very useful for lowering blood pressure because of its fiber, potassium, phosphorus and vitamin C content. Based on the DASH (Dietary Approaches to Stop Hypertension) research, it is said that to lower blood pressure, it is highly recommended to consume foods that are high in potassium and fiber.⁹

The results of research by Putri Aulia (2018) on the Effect of Giving Starfruit Juice on Changes in Blood Pressure of Hypertension Patients in Nursing Homes with a quasi-experimental method. The research was conducted for 7 days with a sample of 10 people, divided into two groups of control and experiment. The results showed that 5 respondents who were given star fruit juice had a change in blood pressure with an average difference in systolic blood pressure before and after administration with *P value* = 0.014, meaning that there was a significant difference. The results obtained in research

on the effect of giving Averrhoa carambola juice on the reduction of blood pressure in the elderly with hypertension. The quasi-experimental method of 10 respondents who had been selected by means of purposive sampling showed the effect of starfruit juice on reducing blood pressure.¹⁰

From the results of the preliminary survey, the data obtained by the elderly who suffer hypertension comes to do a health check at the the integrated service center, which is numbered 20 people. After interviewing researchers, most of the elderly have risk factors hypertension, namely the habit of consuming coffee, smoking and consuming salt. Elderly control blood pressure using medicine from a doctor, besides that, the community does not yet know about non-pharmacological therapy with herbal therapy, namely using starfruit juice is useful for lowering blood pressure.

Based on the description of the data above, the researcher is interested in conducting a research entitled The effect of giving star fruit juice on reducing blood pressure in elderly people with hypertension at the integrated service center in the working area of Rejosari Public Health Center.

METHODS

This type of research is quantitative, the research design is Quasy Experiment with the design of the pre-test-post-test design with the control group, namely by comparing the results obtained before and after being treated in the experimental group and the control group. This research was conducted on December April 20 to 27 2019 at the village health post in Japan, the working area of the Rejosari Community Health Center Holy Dawe. In this study the population was all elderly who came to the elderly integrated service center in Japan village who experienced hypertension. The sample is elderly suffering from hypertension who meet the inclusion criteria. The sampling technique was purposive sampling with a sample size of 20

people with details of 10 people as the experimental group and 10 people as the control group. To find out the respondent's blood pressure, a calibrated sphygmomanometer was used. The analytical test used in this study used the Independent t test.

RESULTS

The results show that the blood pressure before being given the juice Star fruit in the experimental group, it was found that the average systolic blood pressure of the respondents was 183.20 mmHg while the average diastolic blood pressure was 100.00 mmHg with a standard deviation of Systole 10.560 and Diastole 5,270. The results show that the respondent's blood pressure after being given starfruit juice in the experimental group, the average systolic blood pressure of the respondents was 155.60 mmHg, while the average diastolic blood pressure was 90.30 mmHg, with a standard deviation of Systole 10.700 and Diastole 2.710. The results indicate that the respondent's blood pressure before given starfruit juice in the control group, the average systolic blood pressure of the respondents was 188.80 mmHg while the mean diastolic blood pressure was 105.00 mmHg with a standard deviation of Systole 24.027 and Diastole 11.671. The results indicate that the blood pressure of the respondents after being given star fruit juice in the control group obtained an average pressure The respondent's systolic blood was 182.30 mmHg while the mean diastolic blood pressure was 99.90 mmHg, with a standard deviation of Systole 22,886 and Diastole 10,754.

The results show that the mean and standard deviation of blood pressure systole and diastole between measurements before and after juicing star fruit in the experimental group. The mean BP of systole before giving star fruit juice was 183.20 mmHg with SD 10,560, while the mean diastole was 100.00 mmHg and SD 5.270. On the measurement of the systole

After giving star fruit juice was 155.60 mmHg with SD 10.700 while the average diastole was 90.30 mmHg with SD 2.710. This effect was tested by using the paired t test, namely using the paired test The sample t-test obtained p value = 0.000, so it can be seen that the p value <0.05, it can be concluded that there is an effect of giving starfruit juice on reducing blood pressure in elderly people with hypertension at the village health post in Japan village working area of Rejosari Dawe Kudus Health Center.

The results show that the mean and standard deviation of blood pressure systole and diastole between measurements before and after juicing star fruit in the control group. The mean BP of systole before giving star fruit juice was 188.80 mmHg with SD 24.027, while the mean diastole was 105.00 mmHg with SD 11,671. The systole blood pressure after giving star fruit juice was 182.30 mmHg with SD 22,886, while the average diastole was 99.90 mmHg with SD 10,754. This effect was tested by using the paired t test, namely using the paired test The sample t-test obtained p value = 0.000, so it can be seen that the p value <0.05, it can be concluded that there is no effect of starfruit juice on lowering blood pressure in elderly people with hypertension in the village of Japan in the working area of Rejosari Dawe Kudus Health Center.

The results indicate that the statistical analysis is in the form of averages and standard deviation of systolic and systolic blood pressure after being given star fruit juice between the experimental group and the control group. Systole average The experimental group was 155.60 mmHg with SD 10,700 while the mean diastole was 90.30 mmHg and SD 2.710. In the control group systole measurement was 182.30 mmHg with SD 22,886 while the mean diastole was 99.90 mmHg and SD 10,754.

This effect was tested by using the unpaired t test, namely using the test The independent t-test obtained the results

from the posttest systole in the experimental group p value = 0.004, the results from the diastole post test in the experimental group p value = 0.014, so it can be seen that the p value <0.05 , it can be concluded that there is an effect of giving

juice starfruit on lowering blood pressure in elderly people with hypertension at the village health post in Japan, the working area of the Rejosari Dawe Kudus Health Center.

Table 1
Mean difference of blood pressure in elderly people with hypertension

Indicators	Group		p
	Intervention group	Control group	
Systole before intervention	183.20 (± 10.560)	188.80 (± 24.027)	0.004**
Systole after intervention	155.60 (± 10.70)	182.3 (± 22.88)	
p	0.0001*	0.0001*	
Diastole before intervention	100.00 (± 5.270)	105.00 (± 11.67)	0.014**
Diastole before intervention	90.3 (± 2.71)	99.9 (± 10.75)	
p	0.0001*	0.0001*	

* Paired t-test

** Independent t-test

DISCUSSION

Hypertension is not known the cause factor. Which factor may affect it from genetics or heredity and environment.¹¹ In addition, there are risk factors that can cause an increase in blood pressure, including gender, age, stress, smoking habits, drinking coffee, physical activity, salt intake.¹² Based on the description above, the researchers concluded that the respondents' high blood pressure was due to various factors of an unhealthy lifestyle. Therefore, researchers suggest that respondents who suffer from hypertension are expected to reduce the factors that affect blood pressure increase, by increasing awareness to adopt a healthy lifestyle.

After being seen from the results of blood pressure measurements before giving star fruit juice and compared with the results of blood pressure measurements after giving star fruit juice, it was found that there was a decrease in blood pressure both systolic and diastole after giving star fruit juice to the respondents. This shows that star fruit juice has benefits in lowering systolic and diastolic blood pressure in hypertensive sufferers.

The use of traditional medicines such as star fruit juice can lowers blood pressure and is very attractive to respondents. This sweet star fruit is very useful for lowering blood pressure because of its fiber, potassium, phosphorus and vitamin C content. Based on the DASH (Dietary Approaches to Stop Hypertension) research it is said that to lower blood pressure, it is highly recommended to consume foods high in potassium and fiber.⁹ Based on the description above, the researchers concluded that star fruit juice is quite effective in reducing blood pressure in people with hypertension.

Paired t test results obtained p value = 0.000, so it can It is known that the p value <0.05 , it can be concluded that there is an effect of giving starfruit juice on reducing blood pressure in elderly people with hypertension at the integrated service center in the working area of Rejosari Dawe Kudus Health Center.

These results indicate that star fruit juice is effective for reducing blood pressure in elderly people with hypertension, star fruit juice given is starfruit juice as much as 200 cc taken once a day after meals and carried out for 7 consecutive days in elderly people with hypertension. There is an effect of star

fruit juice on blood pressure seen from the decrease in the average blood pressure of both systole and diastole between before and after star fruit juice, the average decrease in systolic blood pressure was 27.6 mmHg, while diastole was 9.02 mmHg, this decrease occurs due to star fruit juice.

The results of Vetri Nathalia's research (2017) show that 5 respondents who were given star fruit juice had a change with the average difference in systolic blood pressure before and after administration with p value = 0.014, meaning that there was a significant difference between blood pressure after and before giving star fruit juice.¹³ The results of Adianto's research (2014) show that from 30 respondents who were given star fruit juice, there was a change using Wilcoxon, it was found that the systolic p value = 0,000 and the diastolic p -value = 0,000 then H_a was accepted, and H_o was rejected, meaning that there was an effect of giving starfruit juice on lowering blood pressure in the elderly with hypertension.¹⁴

According to researchers, star fruit juice has an effect in reducing blood pressure in hypertensive patients, where by drinking star fruit juice regularly can reduce the workload of the heart. Because star fruit contains potassium which can lower blood pressure in sufferers.

The paired t test results obtained p value = 0.000, so it can be seen that the p value <0.05 , it can be concluded that there is an effect of giving starfruit juice on reducing blood pressure in elderly people with hypertension at the integrated service center in the working area of Rejosari Dawe Kudus Health Center. The results showed the measurement of pressure before and After giving star fruit juice in the control group also experienced a decrease, namely the decrease in the mean systolic blood pressure was 6.5 mmHg while the mean decrease in diastolic pressure was 5.1 mmHg.

These results indicated that the control group had a decrease in blood pressure between measurements before and after giving star fruit juice because of the effect of taking anti-hypertensive drugs. At the time of the study before being given star fruit juice intervention, the elderly measured blood pressure first from both groups, after that, the experimental group was given intervention and the control group was not given intervention because the control group was using anti-hypertensive drugs, for 30 minutes a re-measurement was carried out in the control group. So that there are elderly people who experience a decrease in blood pressure, both systolic and diastolic.

The results of Cholifah's research (2018) stated that the value of blood pressure in the intervention group or the group given star fruit juice showed that the p value of systole after the study was 0.03 and diastole was 0.014. This shows a p value <0.05 , so H_o is rejected, which means that there is an effect of giving sweet starfruit juice on blood pressure.¹⁵

The test results with unpaired t test that is using the test independent t -test, the results obtained from systolic blood pressure at p value = 0.004, while diastolic blood pressure p value = 0.014. So it can be seen that the p value <0.05 , it can be concluded that there is an effect of starfruit juice on the decline Blood pressure in elderly people with hypertension at the village health post in Japan, the working area of the Rejosari Community Health Center, Dawe District, Kudus Regency.

The effect of star fruit juice on reducing blood pressure can be seen from the difference in the average systolic and diastolic blood pressure between the experimental group and the control group, where the average systolic blood pressure in the experimental group is 155.60 mmHg, while the average diastolic blood pressure is 90.30 mmHg. In the control group blood pressure measurement, the mean systolic

blood pressure was 182.30 mmHg, while the average diastolic pressure was 99.90 mmHg.

The results of Vetri Nathalia's research (2017) show that 5 respondents who were given star fruit juice had a change with the average difference in systolic blood pressure before and after administration with p value = 0.014, meaning that there was a significant difference between blood pressure after and before giving star fruit juice. This is because the experimental group was given star fruit juice and the control group only used anti-hypertensive drugs.¹³

CONCLUSION

The result was found that blood pressure systole posttest p value was 0.004 and diastole p value was 0.014, so it can be seen that the p value <0.05. then H_0 is rejected and H_a is accepted, there is an effect of giving star fruit juice on reducing blood pressure in elderly people with hypertension at the integrated service center in Japan village, the working area of the Rejosari Dawe Health Center.

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CONFLICTS OF INTEREST

Neither of the authors has any conflicts of interest that would bias the findings presented here.

REFERENCES

1. Lilik Ma'rifatul Azizah. *Keperawatan Lanjut Usia*. Yogyakarta: Graha Ilmu, 2011.
2. Ratna Dewi Pudiastuti. *Penyakit-Penyakit Mematikan*. Yogyakarta: Nuha Medika, 2013.
3. World Health Organization. Ageing and Life Course.
4. Hipertensi di Indonesia berdasarkan riskesdas. riskesdas.
5. Kemenkes RI. Situasi Lanjut Usia (Lansia) di Indonesia. *Infodatin Pus Data dan Inf Kementeri Kesehatan Republik Indones*.
6. Dinkes Jateng. *Profil Kesehatan Provinsi Jawa Tengah Tahun 2017*. 2017.
7. Dinkes Kudus. *Profil Kesehatan Kabupaten Kudus*.
8. Muhammadun. *Hidup Bersama Hipertensi Seringai Darah Tinggi Sang Pembunuh Sekejap*. Yogyakarta: In-Books, 2010.
9. Chaturvedi, M. K. and Bassin JK. Assessing The Water Quality Index of Water Treatment Plant, and Bore Wells, in Delhi, India. *Env Monit Assess* 2011; 449-453.
10. Arza PA, Irawan A. Pengaruh Pemberian Jus Averrhoa carambola terhadap Penurunan Tekanan Darah pada Lansia Penderita Hipertensi. *J Kesehat* 2018; 9: 51.
11. Nurarif .A.H. dan Kusuma. H. *Aplikasi Asuhan Keperawatan Berdasarkan Diagnosa Medis & NANDA NIC-NOC*. Yogyakarta, 2015.
12. Robert Kowalski. *Terapi Hipertensi: Program 8 Minggu Menurunkan Tekanan Darah Tinggi*. Alih Bahasa Rani Ikawati. Bandung: Qanita Mizan Pustaka, 2010.
13. Nathalia V. Pengaruh Pemberian Jus Buah Belimbing Terhadap Perubahan Tekanan Darah Penderita Hipertensi Di Panti Jompo Effect Of Carambola Fruit Juice Of Changes In Blood Pressure Patients With Hypertension In Nursing Homes Latar Belakang Hipertensi saat ini masih me. 2017; 201-216.
14. Ardiyanto I, Nuraeni A, Supriyono M. Efektifitas Jus Belimbing Terhadap Penurunan Tekanan Darah Pada Lansia Di Kelurahan Tawangmas Baru Kecamatan Semarang Barat. *J Ilmi Keperawatan Dan Kebidanan* 2014; 1-8.
15. Cholifah N, ... SS-... IK dan, 2018 U. Pengaruh Juice Belimbing Manis (Averrhoa Carambola Linn) Terhadap Tekanan Darah Pada Lansia Dengan Hipertensi Di Desa Lemah Putih. *J Ilmu Keperawatan dan Kebidanan* 2018; 9: 118-125.