INTERNATIONAL JOURNAL OF HOLISTIC CARE

JOURNAL HOMEPAGE : HTTPS://JOURNAL.HAZIQCORP.COM/INDEX.PHP/IJHC

# Effect of Tomato Juice Administration on Blood Pressure in the Elderly in Hypertensive Patients : Literature Review

**Erlinda Anggraeni[1], Rida Nurafiah[1] , Iqbal Arianl Haq[1]**

[1]Nursing Department, Faculty of Health, Universitas Muhammadiyah Tasikmalaya, Tasikmalaya 46191, Indonesia

OPEN ACCESS

**International Journal of Holistic Care**

Volume 2 No.1 Pg. 32-39


**Article Info**

| | | |
|---|---|---|
| Submit | : | 10 December 2025 |
| Review | : | 20 December 2025 |
| Accepted | : | 11 January 2026 |
| Available Online | : | 25 January 2026 |

**Corresponding Author**
erlindaanggrni321@gmail.com

**Website**
International Journal of Holistic Care



## ABSTRACT

Hypertension is still a sizable problem worldwide, hypertension affects 22% of the world's population. Hypertension is still a health problem in the elderly group, with increasing age, blood pressure will also increase due to the accumulation of collagen in the muscle layer, so that blood vessels will gradually narrow and become stiff. The purpose of this literature review is to determine the effect of tomato juice on blood pressure in the elderly in hypertensive patients. This method uses an analytical approach to analyze the data that the researcher will use, namely *thematic analysis:simplified approach.* Literature selection is carried out through a search on a database, namely Google Scholar. To search for articles, the author searched using Indonesian with the keywords "tomato juice", "blood pressure" and "elderly hypertension". Results: Based on a literature review of six research articles that have been reviewed, there are all articles that have the effect of giving tomato juice in lowering blood pressure in the elderly. Thus, it can be concluded that the administration of tomato juice is quite effective in lowering blood pressure for the elderly in people with hypertension

**Keywords**: Elderly; Hypertension; blood pressure; Influence of Tomato Jos

## INTRODUCTION

Hypertension is still a health problem in the elderly group, with increasing age, blood pressure will also increase due to the accumulation of collagen in the muscle layer, so that blood vessels will gradually narrow and become stiff. After the age of 45, the walls of the arteries will thicken. In general, with age, blood pressure will increase, both systolic blood pressure and diastolic blood pressure. Hypertension is one of the degenerative diseases that is often found in the elderly (Tedjasukmana, 2012).

Hypertension or high blood pressure is a common disease in our society. This condition occurs if the blood pressure in the main arteries in the body is too high. Hypertension is now increasingly common in the elderly. Hypertension is a disorder that is difficult for our own body to know. The only way to know if hypertension is to measure our blood pressure regularly. Normal body blood pressure is 120/80 (systolic pressure 120 mmHg and diastolic pressure 80 mmHg). However, the blood pressure value does not have a standard value. It varies depending on a person's physical and emotional activity (Meita, 2011)

The prevalence of hypertension in Indonesia reaches 37.7% of the population at the age of 18 years and above, of which 60% ends in stroke, while the rest is in heart, kidney failure and blindness. In adults, an increase in systolic blood pressure of 20% mmHg leads to a 60% increased risk of cardiovascular death. Riskesdas data states hypertension as the number 3 cause of death after stroke and tuberculosis, accounting for 16.5% of the proportion of deaths of all ages in Indonesia. (Ministry of Health of the Republic of Indonesia, 2014)

One of the fruits that can lower blood pressure is tomatoes, given in the form of juice. Tomato juice has potassium content that can increase the excretion of sodium and water, resulting in a decrease in plasma volume, cardiac output, peripheral pressure and blood pressure. This is what causes the blood pressure of respondents with changes in blood pressure in hypertensive patients who consume tomato juice to decrease.

Tomato juice as a non-pharmacological or herbal therapy as a treatment for high blood pressure. Tomatoes contain a lot of potassium, potassium can also affect the renin angiostensin system as an inhibitor of excretion. Renin works to convert angiotensinogen into angiotensin I, but the presence of a block in the system causes blood vessels to undergo vasodilation, so it can cause blood pressure to decrease, other functions of potassium can also reduce the potential of the blood vessel wall membrane, cause relaxation of the blood vessel walls and ultimately can lower blood pressure in hypertensive patients. (Monika, 2013 in Nurul Hidayah et al., 2018)

Raharjo (2012) conducted a study on the effect of tomato juice administration on systolic and diastolic blood pressure in hypertensive patients. The respondents used were 96 people aged 30-65 years in Wonorejo Lawang, Malang Regency. Respondents were given tomato juice for 7 days as much as 250 ml made from 150 grams of tomatoes and 100 ml of water. The purpose is to find out the effect of tomato juice on blood pressure.

Lestari and Rahayuningsih in the Journal of Nutrition College (2012:414-420) explained the research conducted in the city of Semarang. A total of 34 postmenopausal female research subjects were given 200 ml of tomato juice made from 150 tomatoes, 5 g of granulated sugar and 50 ml of water. Tomato juice is given once for 7 consecutive hars. As a result, there was a decrease in systolic blood pressure and diastolic blood pressure.

Therefore, the researcher is interested in conducting research on the effect of tomato juice consumption on the reduction of blood pressure in the elderly in hypertensive patients with a literature review of related articles.

## METHOD

This method uses an analytical approach to analyze the data that the researcher will use, namely *thematic analysis:simplified approach.* Literature selection is carried out through a search on a database, namely Google Scholar. To search for articles, the author searched

using Indonesian with the keywords "tomato juice", "blood pressure" and "elderly hypertension"

The method used in this study is the literature study method or literature review. A literature review is a comprehensive overview of the research that has been done on a specific topic to show the reader what is already known about that topic and what is not known, to find the rationale for the research that has already been done or for the idea of further research (Denney & Tewksbury)

## RESULTS

Based on the results of the literature review obtained from three journals, it can be seen in table 1

**Table 1. Journal Literature Results**

| Journal review results | Journal 1 | Journal 2 | Journal 3 |
|---|---|---|---|
| Researcher | L Kurniasari, F Arofiati | EkaTrismiyana, Usastiawaty Cik Ayu Saadiah Isnainy, Herizon | Nurul Hidayah, Agus Setyo Utomo, Denys |
| Year | 2016 | 2020 | 2018 |
| Volume, Numbers | JMM 2016 p-ISSN 2622-657X, e-ISSN 2723-6862 | E-ISSN: 2655-4712 VOLUME 2, NUMBER4 SEPTEMBER 2020] PAGE 791-800 | ISSN (Print): 2087-5053Special Edition, September 2018ISSN (Online): 2476-9614 |
| Title | The Effect of Giving Tomato Juice on Blood Pressure in the Elderly with Hypertension at the Tresna Social Home Holiday rentals in Yogyakarta | The Effect of Giving Tomato Juice on Blood Pressure in the ElderlyHypertension Patients at the Kotabumi 2 Health Center, South Kotabumi District, North Lampung Regency | Influence of Tomato Juice Against the Decline Blood Pressure On Hypertensive Patients Elderly |
| Methods (Design, Samples, Variables, Instruments, Analysis) | **D**: This research is a research *Quasi Experiment* with a plan *Non-Equivalent Control Group.* The population of this study is elderly people with hypertension in the PSTW Abiyoso Unit who are more than 60 years old.<br>**Q**: Respondents in the study 30 people were divided into two groups, 15 respondents for the experimental group and 15 respondents as the control group<br>**V**: Variable in research This is independent variables/ Interventions.<br>**I**: In the experimental group every afternoon at 15.30 WIB for 7 days, blood pressure data was taken, then tomato juice was given and waited for 30 minutes then blood | **D**: This study uses a quasi-experimental research design with a pre and post test design approach. The subject of the study is the elderly. The population of all elderly people with hypertension is 143 elderly people at the Kotabumi 2 Health Center, Kotabumi Selatanka District, North Lampung Regency<br>**Q**: 30 respondents of accidental sampling technique independent variables of tomato juice administration and dependent variables of blood pressure reduction<br>**V**: There are 2 variable, independent variable (grant tomato juice ) with a dependent (blood pressure drop) | **D**: In this study, a quasi-experimental method with pre test and post test design was used. The population in this study is all hypertensive patients who have never consumed tomato juice and routinely checked blood pressure as many as 96 people aged 30-65 years in Wonorejo Lawang, Malang Regency.<br>**S**: Sampling using non-probability sampling techniques with a consecutive sampling approach with Total sample 30.<br>**V**: The variables in this study are independent/interventional variables.<br>**I**: Respondents were given tomato juice for 7 days as much as 250 ml made from 150 grams of tomatoes and |

| | | | |
|---|---|---|---|
| | pressure was checked again after the consumption of juice, tomato juice consumed was 100gr. In the control group, respondents at 15.30 WIB were checked for blood pressure and waited 30 minutes and then checked again.<br>**A**: Data were analyzed using an independent t test < α 0.05 | **I**: Provision of tomato juice for 7 consecutive days 2 times a day in the working area of the Kotabumi 2 Health Center, South Kotabumi District, North Lampung in 2019.<br>**A**: The data was analyzed using the statistical test results obtained by the t-test results of the statistical test obtained by the t-test > t table, 19.833> 4.197 p-value = 0.000 (p-value < a = 0.05) | 100 ml of water on July 8-15, 2016<br>**A**: calculation using the Paired T Test with |
| Research Results | The results of the study show that the average before the application of tomato juice, there were systolic pressure respondents of 159.71 mmHg for diastolic pressure of 90.19 mmHg. 2. The measurement results after being given tomato juice, the systolic pressure decreased to 146.53 mmHg and the diastolic decreased to 85.09 mmHg. It can be concluded that the administration of tomato juice has an effect on blood pressure in the elderly with hypertension at the PSTW Abiyoso unit, meaning that the administration of tomato juice is able to lower blood pressure | From the results of the study, it is known that the average blood pressure before the intervention was 152.83 with a standard deviation of 5.279), and after the intervention was 133.00 with a standard deviation of 5.072. That there was an effect of tomato juice on the blood pressure of elderly people with hypertension at the Kotabumi 2 Health Center, South Kotabumi District, North Lampung Regency in 2019 (t-test > t table, 19.833> 4.197 p-value = 0.000 (p-value < a = 0.05). | The results of the study showed that the average value of initial blood pressure was 156/92 mmH and the average blood pressure after 142.33/88.52 mmHg. There was a change in the administration of tomato juice to a decrease in systolic and diastolic blood pressure. Systolic amounting to 5.33 -1.00 mmHg and Diastolic amounting to 1.64 -0.33 mmHg. The results of this study were obtained a p value of 0.00 < 0.05 which means that h0 was rejected due to sig. (2-tailed) is smaller than α, meaning that there is an effect after being given tomato juice on the blood pressure of hypertensive people |
| Database | Google Scholar<br>Source :<br>Kurniasari, L., & Arofiati, F. (2012). *The Effect of Tomato Juice on Blood Pressure in Elderly Patients with Hypertension at the Tresna Werdha Social Home Abiyoso Unit Yogyakarta* (Doctoral dissertation, STIKES'Aisyiyah Yogyakarta). | Google Scholar<br>Source :<br>Trismiyana, E., Isnainy, U. C. A. S., & Herizon, H. (2020). The Effect of Giving Tomato Juice on Blood Pressure of Elderly Patients with Hypertension at the Kotabumi 2 Health Center, South Kotabumi District, North Lampung Regency. *Malahayati Nursing Journal*, *2*(4), 791-800. | Google Scholar<br>Sources:<br>Hidayah, N., Utomo, A. S., & Denys, D. (2018). THE EFFECT OF TOMATO JUICE ON LOWERING BLOOD PRESSURE IN ELDERLY HYPERTENSIVE PATIENTS. *The Indonesian Journal of Health Science*, 77-83. |

*Source: Sulung & Dian (2017); Ariani (2019); Life (2020)*

| **Journal review results** | **Journal 4** | **Journal 5** | **Journal 6** |
|---|---|---|---|
| Researcher | Suwanti1 , Blessings Adhy Nugraha2 | 1Hapipah, 2Maelina Ariyanti,3Ulfatul Izzah,4Istianah | Wahyuni, Ferti Estri Suryani |
| Year | 2018 | 2019 | 2017 |

| | | | |
|---|---|---|---|
| Volume, Numbers | Volume 1 No 1, Page 1 - 4, November 2018 ISSN2621-3001 (online media) | Scientific Journal of STIKES Citra Delima Bangka Belitungp-ISSN: 2087-2240/e-ISSN: 2655-0792 | ISSN 2407-9189 |
| Title | The Effect of Giving Tomato Juice on Blood Pressure in the Elderly Hypertension Sufferers in Lemahireng Village, Bawen District | The Effect of Tomato Juice on the Decrease in Blood Pressure of the Elderly With Hypertension in the Working Area of the Karang Pule Health Center, Mataram City | The effect of the administration of tomato juice therapy on the reduction of blood pressure in patients with stage 1 primary hypertension in Monggot village, Geyer District, Grobongan Regency |
| Methods (Design, Samples, Variables, Instruments, Analysis) | **D**:P this research Types of researchQuasy Experiment using one – Group Pre Post Test Design.The research population of all elderly people with hypertension in Lemah Ireng Village<br>**Q**: The research sample was 15 elderly<br>**V**: Variable in research This is independen t variables/ Intervention<br>**I**:D m giving tomato juice 363 mg/day obtained from 150 grams of tomatoes.<br>**A**: Data were analyzed using a dependent t-test (α = 0.05). | **D**: This study uses a Pre-Experimental research design using the One Group Pre – Post Test without control Design approach. This research was conducted in the working area of the Karang Pule Health Center, Mataram City.<br>**Q**: The number of samples in this study is 16 people sampling using purposive sampling techniques.<br>**V**:Variable in research this is an independent variable/ Intervention<br>**I**: The administration was carried out for 7 days and the respondents were measured in blood pressure 10 minutes before the consumption of tomato juice, and 30 minutes after the consumption of tomato juice.<br>**A**: The data was analyzed through two stages, namely univariate analysis and bivariate analysis. Bivariate analysis using the Wilcoxon Test with α (0.05) where previously data normality test with the Shapiro Wilk test was obtained with the results of unnormally distributed data (α 0.252). | **D**: This study uses a type of quantitative research using Quasy Experimental Design or pseudo-experimental design and one group pre test –post test design method. The research was conducted in Monggot Village, Geyer District, Grobogan Regency.<br>**Q**: Sampling by purposive sampling. Research Subject Patients with Stage 1 Primary Hypertension totaled 20 people<br>**V**: Variable in Research this is an independent variable/ Intervention<br>**I**: respondents were given tomato fruit juice made from 150 gr of ripe tomatoes mashed with blender without added water and sugar given for 7 days<br>**A**: Bivariate analysis data using the wilcoxon test. |
| Research Results | The results showed that the average blood pressure of the elderly systole was 164.47 mmHg, after being given tomato juice dropped to 150.53 mmhg. Meanwhile, his diastole blood pressure also decreased from 93.00 mmhg before being given | From the results of the study, blood pressure in the elderly with hypertension was given before being given tomato juice with an average systolic blood pressure of 151.88 mmHg and diastole with an average blood pressure of 95.94 mmHg and after being given tomato juice with an | From the results of the study, there was an effect of the administration of tomato juice therapy on the reduction of blood pressure in patients with stage 1 primary hypertension in Monggot Village, Geyer District, Grobogan Regency on the reduction of blood pressure in patients with stage 1 |

| | | | |
|---|---|---|---|
| | tomato juice to 85.53 after being given tomato juice. There is a significant effect of giving tomato juice on blood pressure in elderly people with hypertension in Lemahireng Village, Bawen District, Semarang Regency. | average systolic pressure of 130.00 mmHg and an average diastole pressure of 88.27 mmHg. The test results showed that there was a significant influence on the administration of tomato juice on the reduction of blood pressure in the elderly who experienced hypertension with a value of ρ=0.000 (ρ<0.05) | primary hypertension in Monggot Village, Geyer District, Grobogan Regency, systolic blood pressure after treatment was 136.50 mmHg and average diastolic blood pressure after treatment by 88.20 mmHg |
| Database | Google Scholar<br>Source :<br>Suwanti, B. A. N. (2018). THE EFFECT OF GIVING TOMATO JUICE ON THE BLOOD PRESSURE OF ELDERLY PEOPLE WITH HYPERTENSION IN LEMAHIRENG VILLAGE, BAWEN DISTRICT. | Google Scholar<br>Source :<br>Hapipah, H., Izzah, U., Ariyanti, M., & Istianah, I. (2019). The effect of tomato juice on the reduction of blood pressure in the elderly with hypertension. *Citra Delima: Scientific Journal of STIKES Citra Delima Bangka Belitung*, *3*(1), 5-9. | Google Scholar<br>Source :<br>Wahyuni, W., & Suryani, F. E. (2017). The Effect of Tomato Juice Therapy on Lowering Blood Pressure in Patients with Stage 1 Primary Hypertension in Monggot Village, Geyer District, Grobogan Regency. *URECOL,* 345-350. |

## DISCUSSION

In this section, we discuss the differences before and after giving tomato juice to the elderly from the six main themes of the article, as for the results obtained by researchers from six main themes, namely the effect of tomato juice which can be used to lower high blood pressure in the elderly

### Blood Pressure Before Tomato Juice Is Administered

The results of the literature study from 6 journals with different characteristics of respondents and research interventions used There are several elderly blood pressure that reaches the average blood pressure before the intervention, which is 152.83. As evidenced by a study conducted by Nurul Hidayah et al., it showed that the study respondents had an average initial blood pressure value of 156/92 mmH before being given tomato juice.

### Blood Pressure After Tomato Juice

The results of the study literature from 6 journals showed that after tomato juice therapy was carried out in the elderly, there was a change in blood pressure category to normal As evidenced in the journal researched by Kurniasari and Arofiati with an experiment of giving tomato juice for 7 days in hypertensive patients with an average result of systolic pressure of 159.71 mmHg for diastolic pressure of 90.19 mmHg by showing a decrease in systolic and diastolic pressure to 146.5 mmHg / 89.09 mmHg.

It was proven in a journal researched by Kurniasari and Arofiati with an experiment of giving tomato juice for 7 days to hypertensive patients with an average result of systolic pressure of 159.71 mmHg for diastolic pressure of 90.19 mmHg by showing a decrease in systolic and diastolic pressure to 146.5 mmHg / 89.09 mmHg.

Based on the results of the research observations, there was a change in sleep quality with blood pressure in this study mostly caused by tomato juice carried out by the respondents because during the research process there was the administration of tomato juice and during the research process there was a gradual change in blood pressure from the first day to the seventh day, this is supported by the results of the respondent's blood pressure measurement that each respondent experienced a decrease in blood pressure. Based on the results of the study,

there is a suitability of the theory that potassium in tomato juice can lower blood pressure by inhibiting the release of renin so that there is an increase in sodium and water excretion (Nuziyati et al., 2016; Haddy et al., 2006; Jacob, 2006).

Then it was proven again in other studies researched by Nurul Hidayah et al, showing that there is an effect of giving tomato juice with changes in blood pressure, both systolic and diastolic. The systolic and diastolic blood pressure that most respondents got before consuming tomato juice was borderline hypertension. The blood pressure obtained after consuming tomato juice changed, namely the blood pressure of most respondents became mild hypertension and normotension. There is a significant effect between tomato juice on hypertension blood pressure in the elderly with results showing a decrease in blood pressure in hypertensive patients with a Pvalue value = 0.000< 0.05 which means that h0 is rejected due to sig. (2-tailed) is smaller than α, meaning that there is an effect after being given tomato juice on the blood pressure of hypertensive patients.

Tomatoes are able to reduce blood pressure because tomatoes have a chemical content in 100 grams of tomatoes such as 20 calories of calcium, 1 gram of protein, 4.2 grams of carbohydrates, 5 mg of calcium, 360 mg of potassium, 0.5 mg of iron, 40 mg of vitamin C, 1,500 SI of vitamin A, 0.06 mg of vitamin B1, 94 grams of water (Kumalaningsih, 2006).

Another study that proves that tomato juice can reduce hypertension rates is a study conducted by Suwanti, et al. which then obtained the results of the study showing that the average blood pressure of the elderly systole was 164.47 mmHg, after being given tomato juice dropped to 150.53 mmHg. Meanwhile, his diastole blood pressure also decreased from 93.00 mmhg before being given tomato juice to 85.53 after being given tomato juice. There is a significant effect of giving tomato juice on blood pressure in the elderly with hypertension.

Hapipah, et al. took part in the study of the relationship between tomato juice and the reduction of hypertension, it can be seen that the results of the average blood pressure before and after the administration of tomato juice showed an average decrease in the systole blood pressure score from 151.88 before treatment to 130.00 after treatment and the average decrease in the diastole blood pressure score from 95.94 before treatment to 88.75 after treatment. while the results of the analysis of the Wilcoxon test showed a decrease in blood pressure with a statistically significant result of p=0.000 (p<0.05), meaning that the results of the analysis showed that there was a decrease in systole and diastole blood pressure after the administration of tomato juice.

And there is also Waryantini, et al. got proof with the same hasl as the previous research researchers, namely the intervention group given tomato juice therapy, the average change in blood pressure value before the intervention was given was 4.60 and the average change in blood pressure value after the intervention was given to 3.90 so that there was a decrease in blood pressure value of 0.7 in the intervention group given tomato juice.

## CONCLUSION

Based on the results of the review of 6 journals, conclusions can be drawn, which are as follows:

1. The administration of tomato juice is quite effective in lowering blood pressure in elderly patients with hypertension
2. The use of tomato juice may be recommended as a non-pharmacological intervention that can lower blood pressure in patients suffering from hypertension
3. The most effective blood pressure reduction was obtained through the consumption of tomato juice for 7 days as much as 250 ml made from 150 grams of tomatoes and 100 ml of water
4. Tomatoes are quite affordable and easy to find so they are effective enough to provide interventions in elderly hypertensive patients in the long term

**REFERENCES**


Kurniasari, L., & Arofiati, F. (2012). *Pengaruh Pemberian Jus Tomat terhadap Tekanan Darah pada Lansia Penderita Hipertensi di Panti Sosial Tresna Werdha Unit Abiyoso Yogyakarta* (Doctoral dissertation, STIKES'Aisyiyah Yogyakarta).

Trismiyana, E., Isnainy, U. C. A. S., & Herizon, H. (2020). Pengaruh Pemberian Jus Tomat Terhadap Tekanan Darah Lansia Penderita Hipertensi Di Puskesmas Kotabumi 2 Kecamatan Kotabumi Selatan Kabupaten Lampung Utara. *Malahayati Nursing Journal*, *2*(4), 791-800.

Hidayah, N., Utomo, A. S., & Denys, D. (2018). Pengaruh Jus Tomat Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi Lansia. *The Indonesian Journal of Health Science*, 77-83.

Suwanti, B. A. N. (2018). Pengaruh Pemberian Jus Tomat Terhadap Tekanan Darah Lansia Penderita Hipertensi Didesa Lemahireng Kecamatan Bawen.

Hapipah, H., Izzah, U., Ariyanti, M., & Istianah, I. (2019). Pengaruh Jus Tomat Terhadap Penurunan Tekanan Darah Lansia Dengan Hipertensi. *Citra Delima: Jurnal Ilmiah STIKES Citra Delima Bangka Belitung*, *3*(1), 5-9.

Wahyuni, W., & Suryani, F. E. (2017). Pengaruh Pemberian Terapi Jus Buah Tomat terhadap Penurunan Tekanan Darah pada Penderita Hipertensi Primer Stage 1 di Desa Monggot Kecamatan Geyer Kabupaten Grobogan. *URECOL*, 345-350.

Masroni, M., Barata, B. P., & Nurkholisah, S. (2020). Efektivitas Pemberian Jus Tomat Terhadap Perubahan Tekanan Darah Pada Lansia Penderita Hipertensi: Literatur Review Study. *Healthy*, *9*(1), 11-19.

Septimar, Z. M., Rustami, M., & Wibisono, A. Y. G. (2020). Pengaruh Pemberian Jus Tomat Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi Di Tangerang Tahun 2020: a Literature Review. *Menara Medika*, *3*(1).

Yani, A., & Patricia, V. (2022). Studi Literatur: Potensi Tanaman Belimbing Wuluh dalam Menurunkan Tekanan Darah Penderita Hipertensi. *Jurnal Kesehatan Manarang*, *8*(1), 17-25.

Nugraha, B. A. (2018). Pengaruh Pemberian Jus Tomat Terhadap Tekanan Darah Lansia Penderita Hipertensi Didesa Lemahireng Kecamatan Bawen. *Jurnal Ilmu Keperawatan Komunitas*, *1*(2), 1-4.