Vol. 2 No. 4 Edisi Oktober 2025 E. ISSN. 3032-2472
Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

AN OVERIVEW OF TOMATO JUICE ADMINISTRATION ON BLOOD PRESURE REDUCTION IN ELDERLY PATIENTS WITH HYPERTENSION IN GEMURUH VILLAGE

GAMBARAN PEMBERIAN JUS TOMAT TERHADAP PENURUNAN TEKANAN DARAH PADA LANSIA DENGAN HIPERTENSI DI DESA GEMURUH

Luthfi Nafisa Agustina[1], Dwi Astuti[2*], Wiwik Priyatin[3]
[1]Diploma III Nursing Study Program, Politeknik Yakpermas Banyumas, Email: luthfinafisaagustina@gmail.com
[2]Teacher Diploma III Nursing Study Program, Politeknik Yakpermas Banyumas, Email: dwiast745@gmail.com
[3] Teacher Diploma III Nursing Study Program, Politeknik Yakpermas Banyumas, Email : wiwikaura428@gmail.com

*email Koresponden: luthfinafisaagustina@gmail.com

DOI: https://doi.org/10.62567/micjo.v2i4.1462

Abstract

Background: Hypertension is a common non-communicable health problem among the elderly and poses a risk of serious complications. Nonpharmacological therapy using tomato juice—which is rich in potassium and lycopene—has the potential to naturally lower blood pressure. Objective: To observe the changes in blood pressure in elderly patients with hypertension following the administration of tomato juice. Method: A case study design involving one elderly respondent (78 years old) with mild hypertension. The intervention consisted of administering 200 ml of tomato juice every morning before meals for 7 consecutive days. Blood pressure was measured every morning before and after consuming the juice. Results: There was an average reduction of 7.4 mmHg in systolic blood pressure and 5.4 mmHg in diastolic blood pressure after 7 days of intervention, indicating a positive effect of tomato juice in lowering blood pressure. Conclusion: Daily administration of tomato juice for 7 days effectively reduced blood pressure in an elderly hypertensive individual, suggesting it as a safe and practical non-pharmacological therapy.

Keywords: Hypertension, Elderly, Tomato Juice, Blood Pressure

Abstract

Background: Hypertension is a common non-communicable health problem among the elderly and poses a risk of serious complications. Nonpharmacological therapy using tomato juice—which is rich in potassium and lycopene—has the potential to naturally lower blood pressure. Objective: To observe the changes in blood pressure in elderly patients with hypertension following the administration of tomato juice. Method: A case study design involving one elderly respondent (78 years old) with mild

Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

hypertension. The intervention consisted of administering 200 ml of tomato juice every morning before meals for 7 consecutive days. Blood pressure was measured every morning before and after consuming the juice. Results: There was an average reduction of 7.4 mmHg in systolic blood pressure and 5.4 mmHg in diastolic blood pressure after 7 days of intervention, indicating a positive effect of tomato juice in lowering blood pressure. Conclusion: Daily administration of tomato juice for 7 days effectively reduced blood pressure in an elderly hypertensive individual, suggesting it as a safe and practical non-pharmacological therapy.

Keywords: Hypertension, Elderly, Tomato Juice, Blood Pressure

1. INTRODUCTION

Hypertension, often referred to as high blood pressure, is a condition where blood pressure levels rise above 140 mmHg for systolic pressure and 90 mmHg for diastolic pressure. Systolic blood pressure is measured by a sphygmomanometer when the heart contracts, producing the highest reading, while diastolic blood pressure is measured when the heart expands, producing the lowest reading (Putri et al., 2024).

Hypertension is a non-communicable health condition and one of the leading causes of death worldwide. This disease can increase the likelihood of developing severe health problems, such as heart disease, stroke, diabetes, and kidney dysfunction. Often referred to as a "silent killer," hypertension does not exhibit noticeable symptoms, so many people who suffer from it are unaware of their condition until complications arise.

Globally, the number of adults with hypertension has increased significantly, from 650 million to 1.28 billion, with about half of them unaware of their condition (Pramesti et al., 2024). The prevalence of hypertension varies across regions, with Africa having the highest prevalence at 27%, while the Americas have the lowest at 18%. Southeast Asia ranks third with a prevalence of 25% (Pramesti et al., 2024).

According to the American Heart Association (AHA), approximately 74.5 million Americans aged 20 and above suffer from high blood pressure. However, about 95% of cases have no known cause (WHO, 2023). In Indonesia, the percentage of hypertension cases reaches 36%. Based on the Basic Health Research, the incidence of hypertension reaches 34.1%. According to the Central Java Health Profile, the prevalence of hypertension is 37.6%. This figure shows that hypertension remains a leading cause of non-communicable diseases, accounting for 76.5% of cases in 2021 (Ardiansyah & Widowati, 2024).

In Purbalingga Regency, 199,601 people over 15 years old were recorded as having hypertension in the same year. Of these, 34,889 cases (17.48%) received standard health services through blood pressure checks at health centers and their networks (Rechika Amelia Eka Putri, 2024).

Hypertension is a serious threat to patients, as it can trigger various health problems, such as stroke and heart disease, including heart failure. When the heart pumps blood throughout the body, and blood pressure increases, the heart needs to work harder. If this condition persists, the heart muscle can stretch, leading to stiffness and swelling, which can cause shortness of breath and ultimately lead to heart failure. Therefore, it is essential to prevent complications using pharmacological (involving medication) and non-pharmacological (without medication) methods.

Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

One plant that has potential as a treatment for hypertension is the tomato (Putri et al., 2024). Tomatoes are rich in folate, vitamin C, and potassium. Every 100 grams of tomatoes contains approximately 245 mg of potassium, which plays a crucial role in lowering blood pressure by helping to reduce sodium levels in the urine and fluids, similar to the action of diuretics.

Tomato juice is a drink made from the juice of tomatoes, offering numerous health benefits. One of its benefits is its ability to lower blood pressure, thanks to its lycopene content. In 100 grams of fresh tomatoes, there are approximately 4.6 mg of lycopene. Besides being used in cooking, tomatoes can be enjoyed directly as juice. Tomato juice acts as an effective natural remedy for hypertension. Research shows that tomato juice can be a natural solution for lowering high blood pressure (Sakina et al., 2023).

Based on the research by Sakina et al. (2023), the blood pressure of respondents before being given tomato juice was categorized as grade 1 hypertension in 12 respondents (60%) and grade 2 in 8 respondents (40%). After being given tomato juice, the blood pressure became normal-high in 15 respondents (75%), grade 1 in 4 respondents (20%), and grade 2 in 1 respondent (5%). The statistical test used was the Wilcoxon test, which obtained a p-value of 0.001 (0.001 < 0.05).

Based on the research conducted by Putri et al. (2024), the effect of tomato juice on blood pressure in 15 hypertensive patients showed that the average systolic blood pressure before consuming tomato juice was 150.87 mmHg. After consuming tomato juice, the average systolic blood pressure decreased to 138.67 mmHg. For diastolic blood pressure, the average before being given tomato juice was 89.47 mmHg, and after consuming tomato juice, the average diastolic blood pressure decreased to 85.27 mmHg. The final result obtained through the Wilcoxon test showed a P-value of 0.

Based on the background above, the author is interested in conducting research on the description of tomato juice administration on blood pressure reduction in elderly individuals with hypertension. The purpose of this study is to determine the description of tomato juice administration on blood pressure reduction in elderly individuals with hypertension.

2. RESEARCH METHOD

This research The method used in this study applies a descriptive approach with a case study. In this research, the researcher provided nursing care to respondents with hypertension through the administration of tomato juice (Badri & Harefa, 2022).

3. RESULTS AND DISCUSSION

Hari Ke-	Tanggal	Tekanan Darah (mmHg)		Jumlah Penurunan	
		Sebelum Pemberian Jus Tomat	Setelah Pemberian Jus Tomat	Sistolik	Diastolik

Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

0	23/6/2025	149/90 mmHg			
1	24/6/2025	154/84 mmHg	145/83 mmHg	9 mmHg	1 mmHg
2	25/6/2025	174/96 mmHg	171/94 mmHg	3 mmHg	2 mmHg
3	26/6/2025	139/70 mmHg	132/55 mmHg	7 mmHg	15 mmHg
4	27/6/2025	168/82 mmHg	162/79 mmHg	6 mmHg	3 mmHg
5	28/6/2025	159/83 mmHg	146/78 mmHg	13 mmHg	5 mmHg
6	29/6/2025	156/93 mmHg	149/85 mmHg	7 mmHg	8 mmHg
7	30/6/2025	153/82 mmHg	146/78 mmHg	7 mmHg	4 mmHg
		Jumlah		52mmHg	38 mmHg
		Rata-rata		7,4mmHg	5,4mmHg

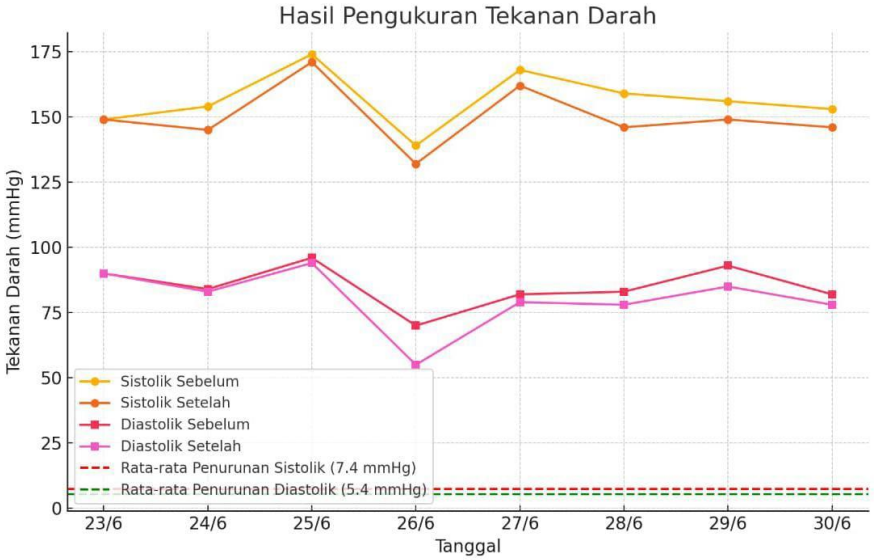
In this Table 4.1 shows the results of daily blood pressure measurements from June 23, 2025, which were taken once a day, in the morning at 07:00 WIB, with a blood pressure reading of 149/90 mmHg. From June 24, 2025, to June 29, 2025, blood pressure measurements were taken twice a day, before consuming tomato juice in the morning before eating (at 07:00 WIB) and after consuming tomato juice (at 09:00 WIB).

Over time, there was a gradual decrease in blood pressure, although it did experience an increase again on June 25 and 27, 2025, with blood pressure readings before tomato juice consumption of 174/96 mmHg on June 25 and 168/82 mmHg on June 27, 2025. However, on June 26, 2025, there was a decrease in diastolic blood pressure of 15 mmHg, and on June 28, 2025, there was a significant decrease in systolic blood pressure of 13 mmHg. These data indicate a clear decrease in blood pressure during the observation period.

After consuming tomato juice, there was an average decrease in systolic blood pressure of 7.4 mmHg and diastolic blood pressure of 5.4 mmHg. This identifies that there was a decrease in the average value of systolic and diastolic blood pressure after tomato juice consumption.

Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

DISCUSSION



This case study aims to determine the effect of tomato juice on blood pressure reduction in elderly patients with hypertension. Sampling, time contracts, and education were conducted on June 23, 2025, at 07:00 WIB. The intervention was carried out for seven consecutive days from June 24 to 30, 2025, with one dose per day in the morning before eating at 07:00 WIB.

Figure 4.1 shows the daily blood pressure readings (in mmHg) from June 24 to 30, 2025. On day 0, education was also provided to the respondent to follow a low-sodium diet and control stress. This education is crucial to support the success of the tomato juice intervention, ensuring that no other factors influence blood pressure reduction besides the juice.

On day 1 (June 24, 2025), before the intervention began, blood pressure was measured before consuming tomato juice at 07:00 WIB, with a result of 154/84 mmHg, and after consuming tomato juice at 09:00 WIB, with a result of 145/83 mmHg. Systolic blood pressure decreased by 9 mmHg, and diastolic blood pressure decreased by 1 mmHg. A decrease in blood pressure was observed after tomato juice consumption.

On day 2 (June 25, 2025), there was a slight increase from the previous day, with blood pressure readings before tomato juice consumption showing 174/96 mmHg and after tomato juice consumption showing 171/94 mmHg. The decrease in systolic blood pressure was 3 mmHg, and diastolic blood pressure was 2 mmHg. This increase was attributed to inconsistency in diet, as the respondent consumed excessive salted fish, which is consistent with previous research (Porkhel, 2024) that reducing sodium intake to a quarter to half a teaspoon (approximately 6 grams per day) can help lower blood pressure.

On day 3 (June 26, 2025), there was a decrease in blood pressure readings before tomato juice consumption, showing 139/70 mmHg, and after tomato juice consumption, showing 132/55 mmHg. After consuming tomato juice, systolic and diastolic blood pressure experienced a significant decrease, with 7 mmHg for systolic blood pressure and 15 mmHg for diastolic blood pressure.

On day 4 (June 27, 2025), there was an increase in blood pressure readings before tomato juice consumption, showing 168/82 mmHg, which was attributed to stress. However, after

Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

consuming tomato juice, blood pressure decreased to 162/79 mmHg, resulting in a decrease of 6 mmHg in systolic blood pressure and 3 mmHg in diastolic blood pressure.

The intervention, including education on a low-sodium diet, was consistently applied throughout the study. Adherence to dietary rules was considered a crucial factor in managing blood pressure. The respondent showed an increase in blood pressure related to high-sodium food consumption. Continued intervention showed a decrease in blood pressure, indicating that lifestyle education had a significant impact on blood pressure. Blood pressure can fluctuate dynamically depending on lifestyle and health interventions. Regular monitoring and education on avoiding high-sodium foods play a vital role in managing hypertension (Nastiti & Widianti, 2024).

The decrease in blood pressure continued on day 5 (June 28, 2025), with morning blood pressure readings before tomato juice consumption showing 159/83 mmHg and after tomato juice consumption showing 146/78 mmHg. Blood pressure continued to decrease by 13 mmHg for systolic blood pressure and 5 mmHg for diastolic blood pressure.

On day 6 (June 29, 2025), there was a decrease in blood pressure readings before tomato juice consumption, showing 156/93 mmHg, and after tomato juice consumption, showing 149/85 mmHg. There was a decrease of 7 mmHg in systolic blood pressure and 8 mmHg in diastolic blood pressure.

The peak decrease occurred on day 7 (June 30, 2025), with blood pressure readings before tomato juice consumption showing 153/82 mmHg and after tomato juice consumption showing 146/78 mmHg. The decrease in systolic blood pressure reached 7 mmHg, and diastolic blood pressure reached 4 mmHg. Overall, systolic blood pressure decreased by an average of 7.4 mmHg, and diastolic blood pressure decreased by an average of 5.4 mmHg.

This decrease shows that consuming tomato juice regularly once a day in the morning before eating (at 07:00 WIB), accompanied by education on reducing high-sodium foods, has a significant effect in lowering blood pressure in elderly patients with hypertension. This is in line with previous research by Putri et al. (2024), which stated that consuming tomato juice for seven consecutive days, effectively lowers blood pressure. The intervention was carried out by giving tomato juice in the morning before eating. After the intervention period, there was a significant decrease in blood pressure in the respondents. This effect is attributed to the compounds found in tomatoes, such as folic acid, vitamin C, and potassium.

Every 100 grams of tomatoes contains approximately 245 mg of potassium, which plays an important role in lowering blood pressure by helping to reduce the amount of sodium in the urine and fluids, similar to the action of diuretics. Potassium is essential for the body, as it helps bind sodium (Na). When sodium levels are too high, the surrounding moisture level decreases, causing an increase in pressure. By increasing potassium intake, sodium can be bound, reducing fluid absorption by sodium and, in turn, lowering blood pressure. Therefore, tomato juice can be used as a non-pharmacological supportive therapy for elderly patients with hypertension. After the case study, the researcher also provided a post-test and further education to the respondent to enable them to consume tomato juice independently and sustainably at home.

4. CONCLUSION

Based on the results of a 7-day case study conducted on an elderly patient with hypertension in Gemuruh Village, it can be concluded that:

Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

1. The results of blood pressure measurements before the intervention showed systolic and diastolic blood pressure readings of 149/90 mmHg.
2. The results of blood pressure measurements after the 7-day intervention showed systolic and diastolic blood pressure readings of 146/78 mmHg.
3. After consuming tomato juice for 7 consecutive days, there was an average decrease in systolic blood pressure of 7.4 mmHg and diastolic blood pressure of 5.4 mmHg.

This, this case study successfully achieved its objective of identifying the effect of tomato juice consumption on blood pressure reduction in elderly patients with hypertension.

5. REFERENCES

Ardiansyah, M. Z., & Widowati, E. (2024). Hubungan Kebisingan dan Karakteristik Individu dengan Kejadian Hipertensi pada Pekerja *Rigid Packaging*. HIGEIA (*Journal of Public Health Research and Development*), 8(1), 141-151. https://doi.org/10.15294/higeia.v8i1.75362

Asbahani, M. R. (2023). Asuhan Keperawatan Gerontik pada Ny.i dengan Penyakit Hipertensi pada *Katz Indeks* a di Wilayah Puskesmas Cilawu Kabupaten Garut.

Az Zaura, T. A., Rahmawati, & Yanti, S. V. (2023). *Effectiveness of Foot Massage Therapy on Decreasing Blood Pressure in Elderly With Hypertension: A Case Study*. Jurnal Ilmiah Mahasiswa Fakultas Keperawatan, VII(1), 82-89.

Badri, I. A., & Harefa, C. M. (2022). Studi Kasus: Penderita Hipertensi Dengan Penerapan Jus Tomat. Jurnal Kesehatan Mercusuar, 5(1), 6-11. https://doi.org/10.36984/jkm.v5i1.259

Fitri, T., Malau, B., Silitonga, S., & Hutagalung, S. A. (2023). Penyuluhan Terhadap Lansia: Mengenali Karakteristik Para Lansia. 1, 47-56.

Kemenkes RI, K. K. R. I. (2023). Profil Kesehatan Indonesia Tahun 2022. In Kementerian Kesehatan Republik Indonesia. https://www.kemkes.go.id/downloads/resources/download/pusda tin/profilkes ehatan-indonesia/Profil-Kesehatan-2021.pdf

Nastiti, M. E., & Widianti, D. (2024). Hubungan Konsumsi Ikan Asin dengan Kejadian Hipertensi pada Masyarakat di Kota Baubau Provinsi Sulawesi Tenggara. *Junior Medical Journal*, *2*(12), 1404-1412

Nazar, A. (2023). Implementasi Peraturan Daerah Kota Pekanbaru No 6 Tahun 2011 Tentang Pajak Restoran (Studi Kasus Rumah Makan Di Kecamatan Tampan). 1-23.

Nuryuliani, E. (2024). Direktorat Jenderal Pelayanan Kesehatan. In Kemenkes Direktorat Jendral Pelayanan Kesehatan (pp. 1-5). https://yankes.kemkes.go.id/view_artikel/1149/intoksikasi-alkohol

Multidisciplinary Indonesian Center Journal (MICJO)
Journal page is available to
https://e-jurnal.jurnalcenter.com/index.php/micjo
Email: admin@jurnalcenter.com

Pokhrel, S. (2024). Asuhan Keperawatan Pada Lansia Dengan Diagnosa Hipertensi Di Blud Puskesmas Tembelang Jombang. 15(1), 37-48.

Pramesti, P. A., Khasanah, S., & Siwi, A. S. (2024). Mejuajua: Jurnal Pengabdian Kepada Masyarakat Pelatihan Kader Kesehatan Desa Mipiran Padamara Purbalingga Tentang Teknik *Slow Deep Breathing* Sebagai Upaya Penurunan Tekanan Darah Pada Penderita Hipertensi. 4, 141-147. https://doi.org/10.52622/mejuajuajabdimas.v4i2.165

Pramudaningsih, I. N., Rofiah, K., & Nisa, K. (2024). Penurunan Tekanan Darah Penderita Hipertensi pada Lansia melalui Tombo Ati (Tanaman Obat Anti Hipertensi) di Wilayah Kerja UPTD Puskesmas Mejobo Kudus. *Jurnal Pengabdian Dan Pemberdayaan Kesehatan,*7(1), 59-68. https://doi.org/10.70109/jupenkes.v1i1.9

Putri, A., Potabuga, U., Laya, A. A., & Yahya, I. M. (2024). Pengaruh Pemberian Jus Tomat Terhadap Tekanan Darah Pada Penderita Hipertensi di Kelurahan Mahawu Lingkungan II Kota Manado. Jurnal Ilmu Keperawatan Dan Kebidanan, 2(1), 105-116. https://doi.org/10.61132/protein.v2il.68

Rahayu, D., & Santoso, P. (2018). Pengaruh Teknik Relaksasi Pernapasan Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi. *Jurnal Keperawatan.*

Rechika Amelia Eka Putri, D. R. E. (2024). Medic nutricia 2024,. 4(1), 1-6. https://doi.org/10.5455/mnj.v1i2.644xa

Sakina, Suaib, & Situmorang, W. (2023). Pengaruh Jus Tomat Terhadap Penurunan Tekanan Darah Pada Penderita Hipertensi Di Desa Walatana Wilayah Kerja Puskesmas Baluase. Gudang Jurnal Ilmu Kesehatan, 1(1), 27.

Thalia. (2024). Manfaat Tomat. *In Malaysian Palm Oil Council* (MPOC) (Vol. 21, Issue 1, pp. 1-9). http://mpoc.org.my/malaysian-palm-oil-industry/

WHO, W. H. 0. (2023). *Hypertension.World Health Organization.*https://www.who.int/news-room/fact-sheets/detail/hypertension

Wulandari, S. R., Winarsih, W., & Istichomah, I. (2023). Peningkatan Derajat Kesehatan Lansia Melalui Penyuluhan Dan Pemeriksaan Kesehatan Lansia Di Dusun Mrisi Yogyakarta. *Pengabdian Masyarakat Cendekia (PMC),* 2(2), 58-61.https://doi.org/10.55426/pmc.v2i2.258