

# **Education on Managing Hypertension with Self-Acupressure and Cucumber Lemon Juice for the Elderly at Nusa Indah Senja Posbindu, Depok**

**Vivi Silawati<sup>1</sup>, Rini Mujayanti<sup>2</sup>, Santi Yuwanasari<sup>3</sup>, Nabila Azzahra<sup>4</sup>, Novita Sari<sup>5</sup>,  
Iis Sugiyono<sup>6</sup>, Siti Sani<sup>7</sup>, Ivanka Velyana Hutapea<sup>8</sup>**

*<sup>12345678</sup>Faculty of Health Sciences, Universitas Nasional, Indonesia*

*\* Corresponding Author: Vivi Silawati, Universitas Nasional, Indonesia;*

*vivi.sila@civitas.unas*

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## **Abstract**

Hypertension is a condition in which a person experiences an increase in blood pressure above the normal threshold that can cause pain and even death. A person is said to have hypertension if their blood pressure exceeds the normal limit, which is more than 140/90 mmHg. The risk factors for hypertension include age, genetics, and lifestyle. If hypertension is not well controlled and occurs continuously, it can lead to various complications such as stroke, kidney disease, heart disease, and even death. Based on data collected at Nusa Indah Posbindu at dusk RT 02 Gandul Village, Cinere District, Depok, West Java, data from January to April 2025 showed that 33.3%-42.1% of the elderly have a history of hypertension. The purpose of this counseling activity for the elderly in the posbindu area is to educate the community on how to manage and control hypertension using self-acupressure techniques and the administration of cucumber lemon juice. The methods used include the presentation of material through PowerPoint, question and answer discussions, distribution of leaflets, educational fans, acupressure aids, direct practice of self-acupressure steps for hypertension, and the administration of cucumber lemon juice. The results of this activity showed that all

participants received the information well, were able to understand the presentation about hypertension and the therapy provided, and could directly practice self-acupressure therapy to manage hypertension. Additionally, participants directly tried the cucumber lemon juice and all liked it.

**Keywords:** Self-Acupressure, Cucumber Lemon Juice, Hypertension

## **Intruduction**

Hypertension is a condition where a person experiences elevated blood pressure above the normal limit, which can lead to pain and even death. A person is considered hypertensive if their blood pressure exceeds the normal limit, which is more than 140/90 mmHg. Blood pressure rises when there is an increase in systolic pressure, which varies for each individual. Blood pressure fluctuates within certain limits, depending on body position, age, and stress levels (Tambunan et al., 2021). Hypertension or high blood pressure is a chronic disease caused by excessive and nearly constant blood pressure on the arteries. Blood pressure is generated by the heart's force when pumping blood. Hypertension is related to increased pressure in the systemic arteries, both diastolic and systolic. Symptoms of hypertension are difficult to identify as there are no specific symptoms. Observable symptoms include dizziness, restlessness, flushed face, ringing in the ears, shortness of breath, fatigue, and blurred vision (Sutanto, 2010; Sijabat et al., 2020).

There are two risk factors for hypertension: unmodifiable risk factors such as age, gender, and genetics, and modifiable factors such as smoking, low-fiber diets, high-fat food consumption, sodium intake, dyslipidemia, excessive salt consumption, lack of physical activity, stress, overweight/obesity, and alcohol consumption (Kartika et al., 2021). According to the Ministry of Health of the Republic of Indonesia (2021), the higher an individual's blood pressure, the greater the risk of developing heart disease, kidney failure, and stroke. The onset of all complication diseases is due to a loss of balance. When high blood pressure rises, individuals may find it difficult to walk due to tension in the neck, shoulders, and back. This is caused by cholesterol levels directly affecting balance nerves, leading to sudden falls for hypertensive patients.

Chronic increases in blood pressure lead to the formation of plaque that can narrow coronary blood vessels, which are vital for supplying oxygen and nutrients to the heart. As a result, the supply of essential substances for the life of heart cells is disrupted. In certain situations, high blood pressure can rupture the plaque in coronary blood vessels. Fragments that break off can block blood flow, leading to a heart attack. Hypertensive patients are twice as likely to suffer from coronary heart disease. Blood vessel blockage can initiate a stroke, which is a motor nerve disorder influenced by blood vessels and centered in the head. Typically, the nerves in the brain do not connect with motor nerves, resulting in paralysis of the affected limbs due to lack of blood flow. The worst complications of blood vessels caused by hypertension are kidney and heart complications. Due to uneven blood flow, several organ functions are affected, influencing the blood volume flowing to the heart, making hypertensive patients at a higher risk of heart disease (Ministry of Health of the Republic of Indonesia, 2021).

A healthy lifestyle has been proven to lower blood pressure, including limiting salt and alcohol intake, increasing fruit and vegetable consumption, losing weight, maintaining an ideal weight (BMI 18.5 – 22.9 kg/m<sup>2</sup>), and engaging in regular light to moderate physical activity (at least 30 minutes a day) while avoiding smoking (Ministry of Health, 2021).

Hypertension treatment can be conducted through pharmacological methods (medications) or non-pharmacological methods. One non-pharmacological therapy that can be used to lower blood pressure in hypertensive patients is acupressure therapy. It is easy to perform, cost-effective, and does not cause side effects even if the acupressure points are pressed incorrectly. Acupressure therapy is similar to acupuncture therapy in its treatment concept, using meridians. During application, acupressure does not harm the body, and no invasive actions are performed. Massage at the acupressure points improves the flow of Chi (Qi) energy to balance Yin and Yang energy in the body, stimulating the release of endorphins, which creates a feeling of relaxation and happiness, thereby lowering blood pressure. Acupressure therapy helps hypertensive patients lower blood pressure and reduces the long-term side effects of medication therapy, such as nausea, vomiting, headaches, and dizziness. Acupressure for lowering blood pressure is crucial; it not only provides therapeutic effects and comfort for hypertensive patients but also enhances their quality of life (Restawan et al., 2023).

The acupressure points used are (LR3), located on the back of the foot in the depression between the meeting of the big toe and the second toe; (PC6), located 3 fingers above the middle of the inner wrist; (ST36), located 4 fingers below the knee on the outer edge of the shinbone; and (GV20), located at the top of the head. Pressure on these points can be applied 30 times, using fingers or acupressure aids (Posbindu Cadre Handbook, P2PTM, 2019).

Cucumbers are vegetables that are easy to obtain, inexpensive, and tasty. While commonly consumed as a side dish, they can also serve as a non-pharmacological solution for treating hypertension (Christine et al., 2021). Cucumbers have hypotensive properties (lowering blood pressure) because their water and potassium content attracts sodium into the intracellular space and works by opening blood vessels (vasodilation), which can lower blood pressure. Every 100 grams of cucumber contains 147 mg of potassium, which is the main intracellular electrolyte; in fact, 98% of the body's potassium is found in cells, with 2% serving neuromuscular functions. Potassium affects both skeletal and heart muscle activity (Christine et al., 2021; Firdaus and Suryaningrat, 2020).

Lemons are known to be rich in natural compounds such as citric acid, ascorbic acid, minerals, flavonoids, and essential oils. Lemon juice can be used as a remedy for hypertension, flu, and irregular menstrual cycles in women. Lemon contains potassium and ascorbic acid, which can prevent oxidative damage to blood vessels, thus lowering high blood pressure. Lemon contains citric acid, polyphenols, and ascorbic acid, which can lower blood pressure because citric acid enhances calcium and magnesium absorption. Moreover, flavonoids in lemon peel can reduce systolic blood pressure (Papp et al., 2011).

Based on data collected from Nusa Indah Posbindu at dusk RT 02 Gandul Village, Cinere District, Depok, West Java, data from January to April 2025 showed that 33.3%-42.1% of the elderly have a history of hypertension. Given the conditions and descriptions above, the community service implementers intend to conduct community service as a form of community midwifery care through counseling/education on how to manage hypertension using self-acupressure techniques and providing cucumber lemon juice.

## **Method**

This community service activity is divided into three stages:

### **1. Preparation Stage**

The preparation stage involves conducting surveys and collecting data from cadres and the head of the RW at Nusa Indah Senja Posbindu RW 02 Gandul Cinere, Depok, West Java. The data used include health check-up results such as blood pressure, blood sugar, uric acid, and cholesterol from January to April 2025. Next, a plan and schedule for activities are prepared according to the community's time. The next preparation stage includes creating material outlines to ensure participants can easily remember them, preparing presentation materials, leaflets, educational fans, providing self-acupressure aids, and preparing cucumber lemon juice for each counseling participant.

### **2. Implementation Stage**

The implementation of activities begins with checking the blood pressure of the participants present, followed by counseling for elderly members of Nusa Indah Senja Posbindu who have a history of hypertension. The counseling material covers risk factors, causes, complications, management, and prevention of hypertension, self-acupressure techniques for managing hypertension, benefits, and how to prepare cucumber lemon juice. After counseling, self-acupressure practice is conducted by distributing leaflets, educational fans, and acupressure aids, followed by a discussion and question-and-answer session, as well as distributing cucumber lemon juice.

### **3. Evaluation Stage**

The evaluation stage is conducted by asking participants questions related to the counseling material. If most participants can answer and practice self-acupressure for hypertension and how to prepare cucumber lemon juice well, then the counseling activity is considered successful.

## **Results**

The data used is secondary data, which is not directly obtained from the research subjects. This data is obtained from the cadres of Nusa Indah Senja Posbindu RW 02 Gandul during the posbindu service over the last four months, from January to April

2025, focusing on blood pressure, blood sugar, uric acid, and cholesterol examinations. Among these four examinations, the highest percentage experienced by members of Nusa Indah Senja Posbindu RW 02 is blood pressure/hypertension issues.

Tabel 1.  
Results of Blood Pressure Examination of Participants at Nusa Indah Senja Posbindu RW 02 Gandul Cinere, Depok, West Java, in 2025

Examination Results	Januari	Februari	Maret	April
High	11	16	13	14
Normal	22	22	26	20
Total Partisipants	33	38	39	34
% High	33,3	42,1	33,3	41,1

From the table above, it can be interpreted that the range of participants present at Posbindu from January to April was between 33-39 people, with a percentage of those with a history of hypertension ranging from 33.3% to 42.1%.

According to the Riskesda results in 2017, the prevalence of hypertension in Indonesia is around 31.7%, with an increase in 2018 to 34.1%, where the majority of hypertensive patients are elderly. The prevalence of hypertension in the elderly aged 60-64 years is known to be 45.9%, while for those aged 65-74 years, it is 57.6%, and for those over 75 years old, it is 63.8%. Compared to those aged 55-59 years, there is a 2.18 times higher risk of hypertension at ages 60-64, 2.45 times at ages 65-69, and 2.97 times for those over 70 (Ministry of Health of the Republic of Indonesia, 2017).

According to Kaplan (2010) in (Azhari, 2017), as a person ages, structural changes occur in large blood vessels, causing the lumen to narrow and blood vessel walls to stiffen, resulting in increased systolic blood pressure. In essence, the increasing prevalence of hypertension with age is due to the need for higher blood pressure to pump sufficient blood to the brain and other vital organs in the elderly. Furthermore, it is known that the high incidence of hypertension in the elderly is caused by natural

changes in the body that affect the heart, blood vessels, and hormones (Singh, 2017).

## Discussion

The community service activity themed "Trim Hypertension with KUMAN TIMON (Self-Acupressure and Cucumber Lemon Juice)" was conducted on Tuesday, June 10, 2025, at 09:00 WIB at TPMB Bdn. Rini Mujayanti, S.Tr.Keb. in Gandul Village, Cinere District, Depok, West Java, with 18 participants who have a history of hypertension from Nusa Indah Senja Posbindu RW 02. The event began with blood pressure checks, where the results indicated that out of the 18 participants present, 13 individuals (72.2%) had blood pressure above 140/90 mmHg, while 5 individuals (27.8%) had blood pressure below 140/90 mmHg.

Table 2 Blood Pressure Examination Results

Category	Number (People)	Percentage (%)
BP <140/90 mmHg	5	27,8
BP ≥ 140/90 mmHg	13	72,2
Total	18	100

The counseling material included definitions, causes, signs and symptoms, risk factors, and management methods for hypertension through self-acupressure and the provision of cucumber lemon juice. The counseling was conducted for 18 individuals aged 50-60 years. The tools used for counseling included PowerPoint presentations, leaflets, and educational media with hand fans containing information about hypertension. After the material presentation, a discussion and question-and-answer session were held, where participants showed great enthusiasm in discussing and asking about hypertension and its management, particularly regarding acupressure methods and cucumber lemon juice. Evaluation was conducted by providing several questions, and

participants who answered correctly received prizes provided by the committee.



Picture 1

Community Service “Trim Hypertension with KUMAN TIMON” (Self-Acupressure and Cucumber Lemon Juice)

Self-acupressure practice was conducted after the presentation of hypertension material. Participants were taught how to perform self-acupressure for hypertension using wooden massage aids together. The points used were (LR3), located on the back of the foot in the depression between the big toe and the second toe; (PC6), located 3 fingers above the mid-point of the inner wrist; (ST36), located 4 fingers below the knee on the outer edge of the shinbone; and (GV20), located at the top of the head (Posbindu Cadre Handbook, P2PTM, 2019). Pressure on these points can be applied for a count of 30. Previous research by Suwarni et al. (2021) found an effect of acupressure therapy on lowering blood pressure in elderly patients with hypertension at Puskesmas Kediri I Tabanan.



Picture 2, Picture 3

### Demonstration of Self-Acupressure Technique Practice of Self-Acupressure Technique

Cucumber lemon juice was provided directly to all participants present. The juice was packaged in 250 ml bottles. After distribution, participants were asked to drink the cucumber lemon juice immediately. All participants enjoyed the taste and finished the juice.

Cucumbers contain 95% water, which lowers blood pressure and has diuretic properties. The water content in cucumbers is also effective for maintaining kidney health and function as it regulates renin-angiotensin activity (Setiawan et al., 2022). Cucumbers have hypotensive properties (lowering blood pressure) because their water and potassium content can draw sodium into the intracellular space and open blood vessels (vasodilation), thereby reducing pressure. Potassium is the main intracellular electrolyte that affects skeletal and heart muscle activity (Putri et al., 2023). Lemon juice contains potassium and ascorbic acid, which can prevent oxidative damage to blood vessels, thus lowering high blood pressure. The flavonoids in lemon act as antioxidants that strengthen and dilate blood vessel linings and control high blood pressure (Soeryanto et al., 2023). The juice was provided in 250 cc servings made from 200 grams of blended cucumber, to be consumed twice a day (in the morning at 10:00 AM and in the afternoon at 4:00 PM) for 7 days (Putri et al., 2023).



Picture 4 Educational Media for Counseling & Cucumber lemon juice

## Conclusion

The community service activity themed "Trim Hypertension with KUMAN TIMON (Self-Acupressure and Cucumber Lemon Juice)" at TPMB Bdn Rini Mujayanti, S.Tr.Keb in Nusa Indah Senja RW 02, Gandul, Cinere, Depok, West Java has been successfully conducted. All participants responded positively, were able to understand the presentation about hypertension and the therapies provided, and could directly practice self-acupressure therapy to manage hypertension. Additionally, participants directly tried the cucumber lemon juice and all liked it. It is recommended to conduct ongoing evaluations and regular monitoring of the community members who have used self-acupressure therapy for hypertension and cucumber lemon juice to assess the success of these therapies.

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## Conflict of Interest

The researcher has no conflict of interest between the authors.

## References

1. Agusella, Vera; Setiaji, Bambang; Diamil, Achmad; Budiati, Endang; Pramudho, Kodrat;. (2024). Faktor-faktor yang Berhubungan dengan Pemanfaatan PTM dalam Implementasi Program Posbindu PTM. *Jurnal Ilmiah Kesehatan Media Husada*, 13(1),65-75
2. Arianti, Agustin Novi; Yuniarti, Tri; Handayani, Rina Tri;. (2024). Efektivitas Jus Mentimun Untuk Menurunkan Tekanan Darah Terhadap Keluarga. *Journal of Language and Health*, vol 5(2),643-654.
3. Direktorat Jenderal Pencegahan dan Pengendalian Penyakit Tidak Menular. (2021). *Buku Pintar Kader Posbindu*. Jakarta : Kemenkes RI.
4. Fandizal, Muhammad; Sani, Novita Dhien; Astuti, Yuli;. (2020). Pengaruh Air Infus Lemon, Semangka, dan Mentimu untuk Menurunkan Tekanan Darah. *Jurnal Ilmiah Ilmu Keperawatan Indonesia*.
5. Fitri, Siti Ulfah Rifa'atul; , Khoirunnisa; Hernawaty, Taty; Harun, Hasniatisari;. (2023). Pemberdayaan Kader dalam Upaya Pencegahan dan Pengenalan Faktor Resiko Penyakit Tidak Menular (PTM). *Jurnal Kreativitas Pengabdian kepada Masyarakat*.
6. Kementerian Kesehatan RI. (2021). *Keputusan Menteri Kesehatan Republik Indonesia tentang Pedoman Nasional Pelayanan Kedokteran Tata Laksana Hipertensi Dewasa*.
7. Kementerian Kesehatan RI. (2021). *Petunjuk Teknis Pelaksanaan Posyandu Lanjut Usia dan Posbindu PTM Terintegrasi*. Jakarta: Kementerian Kesehatan RI.
8. Lukitaningtyas, Dika; Cahyono, Eko Agus;. (2023). Hipertensi; *Artikel Review*. *Jurnal Pengembangan Ilmu dan Praktik Kesehatan*, vol 2(2),100-117.
9. Maharani, Mahrunnisa Syahratudar; Maliya, Arina;. (2024). Konsumsi Mentimun (Cucumis Sativa Linn) dalam Menurunkan Tekanan Darah pada Penderita Hipertensi. *Holistik Jurnal Kesehatan*.
10. Manullang, Evi Sara Hotmauli Br; Sianipar, Helpvina Lestari; Sitohang, Nur Asnah;. (2024). Efektivitas Terapi Akupresur terhadap Penurunan Tekanan Darah

- Pasien Hipertensi sebagai Penerapan Holistic Care: A Literature Review. *Jurnal Ilmu Keperawatan*, vol 1(1), 7-20.
11. Putri, Hanifa; Suryaningsih, Yosi; Roza, Defia;. (2023). Efektivitas Jus Mentimun terhadap Tekanan Darah Pasien Hipertensi. *Journal of Health and Cardiovascular Nursing*, vol 3(2),63-70.
  12. Rufaida, Zulfa; Lestari, Sri Wardini Puji; Sari, Dyah Permata;. (2018). *Terapi Komplementer*. Mojokerto: STIKes Majapahit Mojokerto.
  13. Shiyani, Shaum; Pratiwi, Galih; Sari, Ayu Ratna; Alta, Ulik;. (2022). Narrative Review: Profil Fitokimia dan Potensi Farmakologi Citrus Limon. *Jurnal 'Aisyiyah Medika* vol 7(2),34-48.
  14. Sucipto, Adi; Puspaningtyas, Desty Ervira; Prasetyaningrum, Yunita Indah;. (2022). *Panduan Praktis Pos Pembinaan Terpadu (Posbindu) Bagi Kader*. Jawa Tengah: CV Alinea Media Dipantara.
  15. Suwarni, Ni Made; Sukmandari, N.M.A; Wulandari, Made Ririn Sri;. (2021). Pengaruh Pemberian Terapi Akupresur terhadap Tekanan Darah Lansia di Puskesmas Kediri I Tabanan. *Jurnal Surya Medika*, vol 7 (1), 243-247
  16. Sumarni; Lutfia, Lili; Putri, Nadya Alifah; Chotimah, Chusnul; Yulianti, Rubyatna Eka;. (2024). Metode Akupresur untuk Menurunkan Tekanan Darah Tinggi pada Lansia. *Jurnal ABDIMAS Indonesia*, vol 2(2),22-35
  17. Tambunan, Fauziah Fitri; Rahayu, Putri Rapiq; Sari, Pidia; Sari, Suci Indah;. (2021). *Hipertensi (Si Pembunuh Senyap)*. Medan: CV Pusdikra Mitra Jaya.
  18. Wulandari, Ayu; Sari, Senja Atika; , Ludiana;. (2023). Penerapan Relaksasi Benson terhadap Tekanan Darah pada Pasien Hipertensi di RSUD Jendral Ahmad Yani Kota Metro Tahun 2022. *Jurnal Cendikia Muda*, vol 3 (2),163-171