Health Dynamics
eISSN: 3006-5518
Publisher: Knowledge Dynamics
DOI: https://doi.org/10.33846/hd30604

Original Research

Effectiveness of Acupressure at PC6, LR3, and SP6 in Reducing Blood Pressure among Hormonal Contraceptive Users with Hypertension at TPMB Sumariyah Malang City

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Article history
Received: 8 April 2026
Revised: 4 May 2026
Accepted: 5 May 2026
Published Online: 30 June 2026

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How to cite this article: Putri RE, Alifitri R, Keswara NW. Effectiveness of Acupressure at PC6, LR3, and SP6 in Reducing Blood Pressure among Hormonal Contraceptive Users with Hypertension at TPMB Sumariyah Malang City. *Health Dynamics*, 2026, 3(6), 236-244. https://doi.org/10.33846/hd30604

ABSTRACT

Background: Hormonal contraceptives widely used for family planning, can trigger side effects such as hypertension due to synthetic hormones affecting the renin-angiotensin-aldosterone system. This study aims to determine the effect of acupressure at points PC6 (Neiguan), LR3 (Taichong), and SP6 (Sanyinjiao) on blood pressure among hormonal contraceptive users with hypertension at TPMB Sumariyah, Malang City. **Methods:** This quantitative research employed a pre-experimental one-group pretest-posttest design. A total of 26 hormonal contraceptive users with hypertension were selected using consecutive sampling. Data collection involved measuring blood pressure before and after a seven-day intervention consisting of three acupressure sessions. Data were analyzed using the Wilcoxon Signed Rank Test due to non-normal distribution. **Results:** The study found a significant reduction in blood pressure following the intervention. The mean systolic blood pressure decreased from 145.85 mmHg (SD 7.45) to 126.15 mmHg (SD 6.37), while the mean diastolic pressure decreased from 92.00 mmHg (SD 6.88) to 75.38 mmHg (SD 8.59). Statistical analysis showed a p-value of 0.000 for both systolic and diastolic blood pressure, indicating a highly significant effect. Quantitatively, 100% of participants experienced a decrease in systolic pressure. **Conclusions:** Acupressure at points PC6, LR3, and SP6 effectively reduces blood pressure in hormonal contraceptive users with hypertension. This non-pharmacological therapy can serve as a complementary approach for midwives to manage contraceptive side effects. Future research should incorporate control groups and consider broader lifestyle factors and medical histories to further validate these findings.

Keywords: Acupressure; Hormonal Contraceptives; Hypertension; PC6; LR3; SP6

1. INTRODUCTION

National strategy to control birth rates and spacing using the Family Planning Program (KB) with various contraceptive methods. The use of contraceptives through family planning programs has become one of the most effective methods and a priority program in many countries for controlling population growth.(1) The term "contraception" comes from the words "contra" and "conception." "Contra" means 'against' or "to prevent," while

"conception" is the union of a mature egg and sperm that results in pregnancy.[2] Various methods of contraception are available, one of which is hormonal contraception, which includes the pill, injections, and implants. Hormonal methods, particularly injections and the pill, are widely used because they are highly effective, convenient, and relatively affordable. However, these methods of contraception also have side effects such as menstrual irregularities, weight gain, nausea and vomiting, dizziness, and high blood pressure.

WHO data from 2023 shows that more than 30% of the world's adult population or approximately 1.28 billion people had hypertension, with the prevalence projected to rise to 29.2% (approximately 1.5 million people) by 2025. In Indonesia, the 2018 Riskesdas results reported a prevalence of hypertension of 34.1%, or approximately 61 million adults out of a total population of 178,885,630, while in 2023 the prevalence decreased to 30.8% or about 59 million people out of a total population of 191,558,441with women accounting for a higher proportion than men.[3]

In East Java, the prevalence of hypertension stands at 36.3%, with a higher rate among women (51.2%) than men (48.8%).[4] In Malang City in 2024, many cases of hypertension were treated at public health centers, including the Gribig Public Health Center, which recorded 6.973 patients with hypertension, with a higher proportion of women. Women have the hormone estrogen, which plays a role in maintaining blood vessel health. However, the use of hormonal injectable contraceptives can cause an imbalance between estrogen and progesterone, which has the potential to disrupt blood vessel function and increase the risk of hypertension.

The contraceptive methods most commonly used by users are injections and pills, compared to intrauterine devices (IUD) and implants as their primary contraceptive methods. According to 2018 Riskedas data, the most common types of contraception used by women after childbirth are the 3-month injectable (42.4%), followed by the pill (8.5%), and IUD (6.6%). According to the 2019 Health Profile of the Republic of Indonesia, more than 80% of active participants in the Program in Malang City have a high rate of hormonal contraceptive use; therefore, health issues related to side effects, including hypertension, require attention in healthcare services.[5] Based on preliminary data collected at the Sumariyah Cemorokandang Family Planning Clinic in Malang City from October 1, 2025, to October 31, 2025, there were approximately 31 people using hormonal contraception (injections, pills/oral, implants) who had hypertension.

Some studies also show that hormonal contraception affects users' blood pressure. In a study conducted by Souza, the analysis revealed a significant increase in systolic blood pressure ($p = 0.02$) and diastolic blood pressure ($p=0.004$) among users of cyclic oral contraceptives compared to the control group using non-hormonal methods.[6] Other studies have also shown that the estrogen in birth control pills actively alters the body's system that regulates blood vessel constriction.[7]

As the prevalence of hypertension among users of hormonal contraceptives increases, there is a need for safe, effective, and minimally invasive non-pharmacological management options. One non-pharmacological management option that can be provided is complementary therapy such as acupressure. Acupressure is a technique that apply pressure to specific acupuncture points on the body's surface to balance energy, improve blood circulation, and stimulate the autonomic nervous system, which plays a role in regulating blood pressure.[8]

A study conducted by Dewintasari demonstrated that acupressure on the SP6 and LI4 points resulted in a significant reduction in blood pressure compared to the control group.[9] A relevant study conducted by Galih Jatnika also showed that 30 minutes of acupressure therapy on the ST36, LR3, and LI4 points was able to lower average blood pressure from 153.33/94.17 mmHg to 142.83/88.50 mmHg.[10] In acupressure interventions to lower blood pressure, the selection of acupressure points is crucial because each point has specific physiological functions and is associated with certain meridians that influence the nervous system, blood circulation, and the endocrine system.[11] Based on various quantitative studies and clinical guidelines on acupressure, the three points proven to be effective in regulating blood pressure are PC6 (Neiguan), LR3 (Taichong), and SP6 (Sanyinjiao).[15]

The PC6 point is located on the inner side of the wrist, about 2–3 finger widths above the wrist crease, between the palmaris longus tendon and the flexor carpi radialis tendon.[11] Stimulation of PC6 (Neiguan) can effectively regulate the autonomic nervous system, improve coronary microcirculation, and enhance endothelial function. By regulating the release of vasoactive substances such as nitric oxide (NO) and endothelin (ET), this reduces vascular resistance and increases coronary blood flow, thereby protecting the

myocardium from ischemic injury.[13] On acceptors of hormonal contraception, PC6 is selected because many of them experience symptoms such as heart palpitations, anxiety, and tension due to hormonal changes, stimulating this point helps regulate autonomic nervous system homeostasis and lower blood pressure physiologically.[10]

The LR3 point is located on the top of the foot, between the first and second toes, about 1–1.5 cun (finger widths) upward from the interdigital space.[11] This point belongs to the Liver Meridian and is one of the primary points that helps promote the smooth flow of Qi and blood, as well as alleviate energy stagnation caused by emotional stress.[10] The LR3 point is also effective for relieving stress and emotional tension, which are known to be contributing factors to high blood pressure, particularly in women using hormonal contraceptives who often experience mood swings due to fluctuations in estrogen and progesterone levels.[14]

The SP6 point is located on the inner side of the lower leg, about three finger widths above the inner ankle, behind the edge of the tibia.[11] The SP6 point is the intersection of the three major meridians of the spleen, kidney, and liver, which play a crucial role in hormonal regulation and blood circulation.[12] Acceptors of hormonal birth control often experience fluid retention, hormonal imbalances, and elevated blood pressure due to the effects of exogenous estrogen and progesterone. Stimulation of SP6 helps balance the functions of the spleen, kidneys, and liver, improves peripheral circulation, and regulates fluid metabolism, which contributes to a reduction in blood pressure.[15]

The three points PC6, LR3, and SP6 were selected not only because of their easily accessible locations and frequent use in acupressure practice, but also because their physiological and hormonal mechanisms complement one another. PC6 focuses on regulating the nervous and cardiovascular systems, LR3 on stress management and Qi circulation, while SP6 focuses on hormonal balance and body fluid regulation. The combined stimulation of these three points provides a comprehensive effect that is highly relevant for lowering blood pressure in hormonal contraceptive users who experience hypertension due to simultaneous vascular, nervous, and hormonal factors.

Overall, acupressure lowers blood pressure through a combination of neuroendocrine, local vascular, and hormonal mechanisms that interact with one another. Activation of the parasympathetic nervous system, the release of endorphins, local vasodilation, improved endothelial function, and hormonal modulation make acupressure an effective and relevant complementary intervention for users of hormonal contraceptives with hypertension

Given this phenomenon, further research is needed on the effects of acupressure on the PC6, LR3, and SP6 points in lowering blood pressure among users of hormonal contraception with hypertension, particularly at the Sumariyah Cemorokandang Maternal and Child Health Center in Malang City as a representative of the midwifery care community. This study is expected to make a significant contribution to improving the quality of reproductive health services while preventing cardiovascular complications among women using hormonal contraception.

2. METHODS

2.1 Study Design

This study employs a quantitative methodology. The research design utilizes a pre-experimental design with a one-group pretest-posttest approach. This design was chosen because it allows the researcher to assess the subjects' initial condition (pretest) before the intervention is administered, and then reassess their condition after the intervention (post-test), without the inclusion of a control group.

2.2 Time and Location

This This study was conducted at TPMB Sumariyah, Cemorokandang Village, Kedungkandang Subdistrict, Malang City, East Java Province, Indonesia. The study period ran from December 1, 2025, to February 7, 2026. The study conducted two visits to the homes of the research respondents during the specified time period.

2.3 Population and Sample Size

The study population consisted of all 31 hormonal contraceptive users with hypertension. The sample used in this study consisted of 26 hormonal contraceptive users with hypertension who met the exclusion criteria at the TPMB Sumariyah Cemorokandang. The sample was selected based on a history of elevated blood pressure that emerged or worsened following the use of hormonal contraception. The sampling technique used in this study was nonprobability sampling, specifically consecutive sampling. Consecutive sampling is a method of sample

selection in which all individuals encountered who meet the selection criteria are selected until the desired sample size is reached.

2.4 Variable Identification

Research variables are any entities defined by the researcher as the focus of study, from which information is obtained to draw conclusions. In this study, the independent variables were acupressure therapy at points PC6, LR3, and SP6. The dependent variable in this study was blood pressure (hypertension). Data collection involved gathering primary data through blood pressure measurements taken before and after acupressure was applied to points PC6, LR3, and SP6.

2.5 Data Analysis

The data analysis used univariate data analyzed with descriptive statistics and bivariate data using the Paired T-Test; however, because the normality test results were not normally distributed, a non-parametric test, namely the Wilcoxon test, was used by the researcher with the assistance of SPSS v.16.

3. RESULTS

Respondents Characteristics

Table 1 shows that the majority of respondents were aged 36–50 years, totaling 14 respondents (53.8%), nearly half were aged 11 years (42.3%), and a small portion were under 20 years old (3.8%). None of the respondents were aged 51–65 years (0%). Meanwhile, based on age, the highest age among respondents was 45 years old, with 1 respondent (3.8%), the lowest age was 19 years old, with 1 respondent (3.8%) and the most common age was 32 years old, with 4 respondents (15.4%). Based on the respondents' educational level, it was found that the majority of respondents had a high school education, totaling 15 respondents (57.7%) nearly half had a college education, totaling 7 respondents (26.9%) and a small portion had a junior high school education, totaling 4 respondents (15.4%). Regarding occupation, it was found that more than half of the respondents (57.7%) were homemakers. Meanwhile, some respondents worked as private-sector employees (26.9%) and civil servants (11.5%), and only a small remainder (3.9%) had other occupations. Based on the duration of hormonal contraceptive use, 26 respondents used injectable hormonal contraceptives, with the majority having used them for a period of 1 to 5 years (65.4%). Meanwhile, a small portion of respondents had used them for less than or exactly 1 year, totaling 3 respondents (11.5%).

Table 1. The demographic data of respondents based on age, education, occupation, and duration of use are as follows at TPMB Sumariyah Cemorokandang Malang City

Characteristic	Frequency	Percent
Age		
≤20 years	1	3.8
21 - 35 years	11	42.3
36 - 50 years	14	53.8
51 - 65 years	0	0
Recent education		
Elementary school	0	0
Junior high school graduation	4	15.4
SMA/SMK ends	15	57.7
Higher education or college	7	26.9
Work		
Housewife	15	57.7
Private employees	7	26.9
Civil servant	3	11.5
Other	1	3.9
Duration of use		
≥ 6 months	0	0
≥ 1 month	3	11.5
1-5 years	17	65.4
>5 years	6	23.1

Average Blood Pressure Before Applying Acupressure to PC6, LR3, SP6

Based on Table 2, among the 26 respondents before acupressure was applied to the PC6, LR3, and SP6 points, the mean systolic blood pressure was 145.85 with a standard deviation of 7.45, and the mean diastolic blood pressure was 92.00 with a standard deviation of 6.88. Based on the data in SPSS, the highest systolic blood pressure was 160 mmHg (moderate hypertension) in 2 respondents, while the diastolic blood pressure was 100 mmHg (moderate hypertension) in 8 respondents. The lowest systolic blood pressure was 130 mmHg (high-normal) in 1 respondent, and the lowest diastolic blood pressure was 80 mmHg (optimal) in 4 respondents.

Average Blood Pressure After Applying Acupressure to PC6, LR3, SP6

Based on Table 2, among the 26 respondents before acupressure was applied to the PC6, LR3, and SP6 points,

the mean systolic blood pressure was 126.15 with a standard deviation of 6.37, and the mean diastolic blood pressure was 75.38 with a standard deviation of 8.59. Based on the data in SPSS, the highest systolic blood pressure was 140 mmHg (mild hypertension/Stage 1) in 2 respondents, and the lowest was 120 mmHg (Optimal) in 12 respondents. For diastolic blood pressure, the highest was 90 mmHg (mild hypertension/Stage 1) in 2 respondents, while the lowest diastolic blood pressure was 60 mmHg (optimal) in 2 respondents.

Table 2. Frequency distribution of respondents based on blood pressure before and after receiving PC6, LR3, SP6 acupressure at PMB Sumariyah Cemorokandang Malang City

Hypertension category	Before		After	
	Mean	Std. deviation	Mean	Std. deviation
Systolic	145.85	7.45	126.15	6.37
Diastolic	92.00	6.88	75.38	8.59

The Effect of PC6, LR3, and SP 6 Acupressure on Hormonal Contraceptive Users with Hypertension

According to Table 3, all 26 respondents (100%) showed a decrease in systolic blood pressure, while nearly all 25 respondents (96.2%) also experienced a decrease in diastolic blood pressure. Although the majority of respondents showed a specific decrease in terms of magnitude, clinically these figures are still considered high. It was noted that 12 respondents (46.1%) had a systolic blood pressure of 130 mmHg (normal-high) and 4 respondents (15.3%) had a diastolic blood pressure of 90 mmHg (mild hypertension/Stage 1).

Table 3. The frequency distribution of respondents was based on the blood pressure of female hormonal contraceptive users with hypertension before and after acupressure on PC6, LR3, and SP6 at PMB Sumariyah Cemorokandang, Malang City.

Blood pressure before intervention	Blood pressure after intervention					
	Decreasing		Stable		Increasing	
	Σ	%	Σ	%	Σ	%
Systolic	26	100	0	-	0	-
Diastolic	25	96.2	1	3.8%	0	-

4. DISCUSSION

Table 2 shows a relatively small standard deviation (below 10), indicating that the respondents' answers were relatively consistent and that there were no significant differences; thus, this average can reflect the initial condition of the group prior to the intervention. Referring to the WHO classification, based on the average systolic and diastolic blood pressure results of the 26 respondents at the TPMB Sumariyah Cemorokandang, they fall into the Mild Hypertension (Stage 1) category.

The high blood pressure observed in these respondents may be influenced by several significant factors, such as age, occupation, and duration of use. Based on the characteristics of the research data, the majority of respondents were in the 36–50 age range, totaling 14 individuals or 53.8%. Physiologically, advancing age is associated with a decrease in blood vessel elasticity and an increase in arterial stiffness, which triggers a rise in blood pressure. This aligns with Shufelt's study, which states that the risk of hypertension and cardiovascular disease increases significantly among women using hormonal contraceptives, particularly for those over 35 years of age with uncontrolled blood pressure.[16] In addition, the occupational profile shows that more than half (57.7%) are homemakers. This situation is often associated with a lack of measurable physical activity and potential stress that can activate the sympathetic nervous system, thereby increasing cardiac output and blood pressure. This is supported by Novita's research, which states that daily domestic activities such as washing and ironing are classified only as light physical activity insufficient to prevent blood pressure increases—with women having low activity levels facing a 3.47 times higher risk of hypertension.[15]

Based on the study findings, the primary cause of hypertension in this study stems from the use of hormonal contraception itself. The increase in blood pressure among contraceptive users is caused by an

imbalance of progesterone and estrogen in the body resulting from the use of hormonal contraceptive methods. According to the researchers' data, the majority of respondents (65.4%) had been using hormonal contraception for 1 to 5 years. Hormonal contraceptives, whether injections or pills, contain synthetic progesterone and estrogen, which can trigger an increase in blood pressure through the activation of the renin-angiotensin-aldosterone system (RAAS). Estrogen can increase fluid and sodium retention through the kidneys and enhance the vasoconstrictive response.[16] These findings are consistent with research conducted by Alfian, which indicates that long-term use of exogenous hormones in users of the three-month injectable contraceptive disrupts the body's homeostasis. The body's response to these synthetic hormones manifests not only in reproductive system disorders, such as irregular menstrual cycles, but also in mechanical stress on blood vessels, which can lead to hypertension.[17] If this use continues over the long term without proper monitoring, the risk of developing persistent hypertension will increase. This is consistent with Jayalath's research, which indicates that long-term use of hormonal contraceptives can cause vaginal dryness, headaches, and hypertension.[18]

In addition to hormonal factors, the educational level of the respondents the majority of whom were high school graduates (57.7%) provides a solid foundation for the reception of health information. Although the majority of respondents had a good secondary education, the preference for hormonal methods over Long-Acting Contraceptive Methods (LARC) remained dominant. This aligns with Rohi's findings, which state that the choice of contraceptive method is heavily influenced by the acceptor's level of knowledge regarding LARC.[19] A lack of in-depth knowledge regarding the long-term safety profile of these methods often leads users to continue using hormonal methods (such as injections or pills) even though they are exposed to the risk of systemic side effects, including elevated blood pressure. However, the high blood pressure readings prior to the intervention indicate that awareness of the effects of hormonal contraception on blood pressure still needs to be improved. Respondents as young as 19 years old have also begun to show elevated blood pressure, confirming that hormonal side effects can occur across all age groups. Systolic blood pressure levels averaging 145.85 reflect significant mechanical stress on the arterial walls. If not promptly addressed with therapy, this condition can progress to more severe complications. This is consistent with a study conducted by Cameron, which found that a systolic blood pressure of 145.85 mmHg is medically classified as high risk; pathophysiologically, the estrogen in contraceptives increases renal vascular resistance, thereby exacerbating mechanical stress on the arterial walls. If left untreated, the risk of fatal complications such as a heart attack can increase up to ninefold compared to individuals with normal blood pressure.[20]

Table 2 shows that the study results indicate the mean systolic blood pressure decreased to 126.15 (standard deviation 6.37) and the mean diastolic blood pressure decreased to 75.38 (standard deviation 8.59). This decrease reflects a positive response by the body to the stimulation of meridian points performed during three visits in one week. Quantitatively, all respondents (100%) experienced a decrease in systolic blood pressure, and nearly all (96.2%) experienced a decrease in diastolic blood pressure.

Although there was a statistically significant decrease, the researchers noted clinically important findings 12 participants (46.1%) still had systolic blood pressure at 130 mmHg (normal-high) and 4 participants (15.3%) had diastolic blood pressure at 90 mmHg (mild hypertension/Stage 1). This indicates that while acupressure is effective in lowering blood pressure, the recovery process toward the normal classification (< 130/85 mmHg) is ongoing. This aligns with Galih findings, which noted that the combination of ST36, LR3, and LI4 acupoints reduced average blood pressure from 153.33/94.17 mmHg to 142.83/88.50 mmHg.[10] Environmental factors during the observation period which often took place in the respondents' own homes created a comfortable atmosphere conducive to relaxation, but also allowed for the presence of variable control factors (physical activity, sodium intake, stress levels) that could influence the rate of clinical blood pressure reduction.

These post-test results demonstrate that acupressure on the PC6, LR3, and SP6 points holds great potential as an adjunct therapy for users of hormonal birth control. This aligns with the notion that acupressure helps correct homeostasis imbalances caused by the use of synthetic hormones by stimulating specific points such as PC6, LR3, and SP6, which are known to influence the endocrine and nervous systems. This is consistent with research conducted by Afifah, which shows that acupressure therapy through pressure on nerve tissues

stimulates the endocrine system to release endorphins as needed by the body, where the combined use of meridian points such as PC6 (Neiguan), LR3 (Taichong), and SP6 (Sanyinjiao) has proven effective in correcting functional disorders and creating balance (homeostasis) that can reduce pain caused by excessive hormonal activity.[21]

A reduction in blood pressure from the hypertensive category to near-normal levels or mild hypertension protects blood vessels from permanent damage. This success was also supported by adequate examination room conditions with sufficient lighting, which created a conducive atmosphere for participants to receive energy stimulation through complementary acupressure therapy. With a relatively high average level of education, participants were able to easily understand this technique and apply it independently at home to maintain their blood pressure stability following the study.

Statistical analysis using the Wilcoxon Signed-Rank Test revealed a highly significant effect of acupressure on blood pressure reduction. For systolic blood pressure, the Asymp. Sig. (2-tailed) value was p = 0.000 with a negative Z score of -4.562. Similarly, for diastolic blood pressure, the significance value was p = 0.000 with a Z value of -4.414. These significance values, which are well below the standard error threshold of 0.05 (5%), provide strong empirical evidence that acupressure intervention at points PC6, LR3, and SP6 is effective in lowering blood pressure in hormonal contraceptive users at TPMB Sumariyah Cemorokandang Malang City. In users of hormonal contraceptives, changes in estrogen and progesterone levels caused by contraception can increase fluid retention, vascular tone, and sympathetic activity, thereby exacerbating hypertension. Acupressure on the SP6 and LR3 points can help balance the hormonal system by modulating the Hypothalamic Pituitary Adrenal (HPA) axis, which leads to a reduction in cortisol and catecholamine levels.[22]

Biologically speaking, this effectiveness can be explained by stimulation of these three specific points. The PC6 (Neiguan) point, located on the wrist, regulates the autonomic nervous system and calms the heart, thereby lowering heart rate and cardiac output. The LR3 (Taichong) point on the instep is a key point for facilitating the flow of liver energy (Qi), which is often stagnant in patients with hypertension. Meanwhile, the SP6 (Sanyinjiao) point, where the three Yin meridians converge, plays a crucial role in maintaining fluid and hormonal balance. Stimulation of these points triggers the release of neurotransmitters such as endorphins and serotonin, which induce vasodilation (widening of blood vessels) and reduce the secretion of stress hormones like cortisol, thereby significantly lowering blood pressure. This aligns with quantitative research showing that the use of SP6 in combination with PC6 and LR3 provides a synergistic effect in lowering blood pressure and improving hormonal balance in women with hypertension who use hormonal contraceptives.[12,23]

The effectiveness of this intervention was also influenced by the consistency of the study schedule, which was conducted on the first, fourth, and seventh days. This visitation pattern allowed the body to undergo homeostatic adaptation. The Wilcoxon non-parametric test was used because the majority of blood pressure data were not normally distributed, as indicated by the results of the Shapiro-Wilk test. Thus, the results of this study have statistically reliable accuracy to conclude that acupressure complementary therapy can be one of the complementary therapies for midwives in managing the side effects of hypertension in users of hormonal contraceptives.

5. CONCLUSION

Researchers found a significant decrease in both systolic and diastolic blood pressure among women using hormonal contraception who had hypertension before and after receiving acupressure at the PC6, LR3, and SP6 points at the Sumariyah Cemorokandang Family Planning Clinic in Malang City. Although they were still classified as having stage 1 or mild hypertension, the numerical data showed a decrease. Hormonal contraceptive users can engage in this activity to improve blood circulation and induce relaxation, thereby helping to lower blood pressure. According to the study's findings. A recommendation for future researchers is to conduct studies that consider the underlying causes, medical history of the participants regarding elevated blood pressure, and lifestyle patterns. This is done so that future researchers can gain a broader understanding and conduct more effective research in the future.

Ethical Approval

This study was approved by the Health Research Ethics Committee of the Institute of Science and Health Technology RS dr. Soepraoen, under Ethical Approval No. KEPK-EC/490/1/2026.

Acknowledgement

The authors express their gratitude to the clinical instructors at TPMB Sumariyah Cemorokandang for facilitating the data collection process. Special thanks are also extended to all respondents for their voluntary participation and to our families for their continuous moral support.

Competing Interests

All the authors declare that there are no conflicts of interest.

Funding Information

No funds were received for this study.

Underlying Data

Derived data supporting the findings of this study are available from the corresponding author on request.

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