Journal of Health Sciences and Medical Development
Vol. 4, No. 01, pp. 10-19
journal.iistr.org/index.php/HESMED
DOI: 10.56741/hesmed.v4i01.755

Impact of Cupping Therapy on Blood Pressure in Hypertension Patients at Griya Bekam Az-Zahra

[1]Luthfi Firmanda, [1]Reni Tri Subekti, [1]Apri Budianto, [1]Arena Lestari*
Corresponding Author: *arenalestari@umpri.ac.id
[1] Muhammadiyah University of Pringsewu, Lampung, Indonesia

ARTICLE INFO

Article history
Received 17 November 2024
Revised 08 March 2025
Accepted 10 March 2025

ABSTRACT

Hypertension is a major global health issue, with its prevalence rising annually. It is estimated that by 2025, 1.5 billion people worldwide will suffer from hypertension, and each year, 9.4 million deaths are attributed to hypertension and its complications. The aim of this study was to assess the effect of cupping therapy on blood pressure in hypertension patients at Griya Bekam Az-Zahra in 2024. This quantitative research employed a quasi-experimental design using a one-group pre-test post-test approach. A sample of 20 respondents was selected through accidental sampling at Griya Bekam Az-Zahra. Data were collected via observation sheets, cupping therapy sessions, and blood pressure measurements. Bivariate analysis was conducted using the Wilcoxon test ($\alpha = 0.05$). The study took place from June 27 to July 4, 2024. Results showed a significant reduction in both systolic and diastolic blood pressure following cupping therapy. The mean systolic blood pressure decreased from 143 mmHg to 122.5 mmHg, and the mean diastolic pressure dropped from 89.5 mmHg to 78.5 mmHg. Wilcoxon test results indicated that wet cupping therapy significantly affects blood pressure, with p-values of 0.000 (<0.05) for both systolic and diastolic pressures. In conclusion, wet cupping therapy can positively influence blood pressure in hypertensive patients. This finding suggests that cupping therapy could be a valuable consideration for holistic nursing interventions, incorporating bio-psycho-social-spiritual care for the community, particularly as a complementary nursing treatment.

Keywords
Cupping Therapy
Blood Pressure
Health Service
Hypertension
Patient

This is an open-access article under the CC–BY-SA license.

Introduction

Hypertension, or high blood pressure, is defined as a systolic blood pressure greater than 140 mmHg and a diastolic blood pressure greater than 90 mmHg, measured twice with a five-minute interval while the individual is at rest [1]. It is a significant global health problem as it is a major risk factor for cardiovascular diseases such as heart attacks, heart failure, strokes, and kidney disease. In 2016, ischemic heart disease and stroke were the two leading causes of death worldwide [2].

According to the WHO, hypertension, as a non-communicable disease, is responsible for 45% of deaths due to heart disease and 51% of deaths due to stroke. The highest prevalence of hypertension in Africa is 46% in individuals aged 25 and above, while the lowest prevalence is found in the United States, at 36% [1]. WHO data from 2015 indicates that approximately 1.13 billion people worldwide suffer from hypertension, meaning that one in three people globally is diagnosed with the condition, though only 36.8% of them are on medication. The number of hypertension cases continues to rise annually, and it is estimated that by 2025, there will be 1.5 billion people affected by hypertension, with 9.4 million deaths occurring each year due to hypertension and its complications [3].

In Indonesia, the prevalence of hypertension, based on data from the 2018 Basic Health Research (*Riset Kesehatan Dasar* or Riskesdas) conducted by the Health Research and Development Agency (*Badan Penelitian dan Pengembangan Kesehatan* or Balitbangkes), stands at 34.1%, an increase from 25.8% in 2013. According to the Indonesian Ministry of Health, North Sulawesi has the highest prevalence at 13.2%, while Papua has the lowest at 4.4%. In Lampung province, the highest prevalence of hypertension based on doctor diagnoses is in Way Kanan (25.99%), followed by Bandar Lampung (16.71%), ranking sixth in the province [3].

Hypertension can be managed through pharmacological treatments and complementary therapies. Pharmacological treatment includes diuretics, adrenergic blockers, ACE inhibitors, angiotensin-II blockers, calcium antagonists, and vasodilators. Complementary treatments include massage therapy, reflexology, and meditation [4]. Cupping therapy is also recognized as a treatment for hypertension [5]. Cupping involves extracting metabolic or contaminated blood from the body's surface, which is considered safer than using antioxidant

drugs or other chemical medications. Wet cupping, in particular, is seen as more effective for various diseases, especially those related to blood vessel problems. Unlike dry cupping, which may only treat mild conditions, wet cupping can help address more severe, acute, chronic, or degenerative diseases like hypertension [6].

The benefits of cupping for hypertension include the process of reducing sympathetic nervous system activity and regulating aldosterone hormone levels. This stimulation triggers the secretion of enzymes that act in the renin-angiotensin system, lowering blood volume, releasing nitric oxide that aids in vasodilation, and consequently reducing blood pressure [7]. Cupping increases nitric oxide supply and improves blood circulation, which strengthens and enhances the elasticity of blood vessels, thereby reducing blood pressure. It also stimulates specific receptors that control blood vessel constriction and dilation (baroreceptors), making blood vessels more responsive to stimuli that contribute to hypertension [8].

This study aims to evaluate the effect of cupping therapy on blood pressure in hypertension patients at Griya Bekam Az-Zahra, a major cupping therapy center in Rajabasa District, with approximately 5-10 patients per day. In 2024, there were 583 hypertension patients. Preliminary interviews with 10 hypertension patients who underwent cupping therapy revealed that 7 patients experienced improved well-being, such as feeling more energized, lighter in the neck, reduced dizziness, and greater relaxation, while 3 patients did not report noticeable effects after one cupping session at Griya Bekam Az-Zahra. The study seeks to further explore these findings and the potential benefits of cupping therapy for hypertension management.

Material and Methods

This study is a quantitative research with a quasi-experimental design using a one-group pre-test post-test approach. The sample consisted of 20 hypertension patients who visited Griya Bekam Az-Zahra. The sampling technique used in this study was accidental sampling. Data collection was performed using the standard operating procedures for cupping therapy, a sphygmomanometer, a stethoscope, and observation sheets. Data analysis was conducted both univariately and bivariately, with the bivariate analysis performed using the Wilcoxon test due to the data not following a normal distribution. The study took place at Griya Bekam Az-Zahra, located at Jln. Zainal Abidin Pagar Alam No. 30 Rajabasa, and was conducted from June 27 to July 4, 2024.

Results

A. Univariate Analysis

According to the analysis in Fig. 1, the respondents' characteristics based on gender showed 11 male respondents (55%) and 9 female respondents (45%). Fig. 2 represents the

age distribution of respondents. The largest segment, comprising 40% (8 respondents), belongs to the 41-50 age group, indicating that middle-aged individuals form the majority. The 31-40 and 51-60 age groups each account for 25% (5 respondents each), showing an equal distribution among these age categories. Meanwhile, the smallest portion, 10% (2 respondents), is from the 21-30 age group, indicating a lower participation rate from younger individuals. This distribution suggests that the study primarily involves middle-aged and older participants, with limited representation from younger age groups.

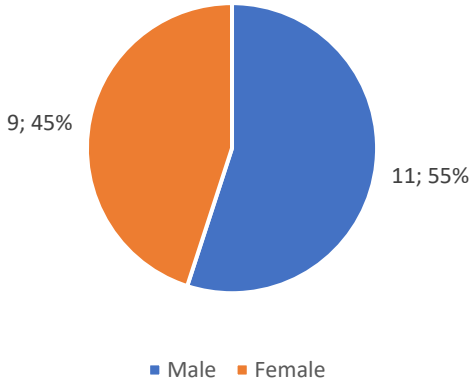


Fig. 1. Gender Distribution

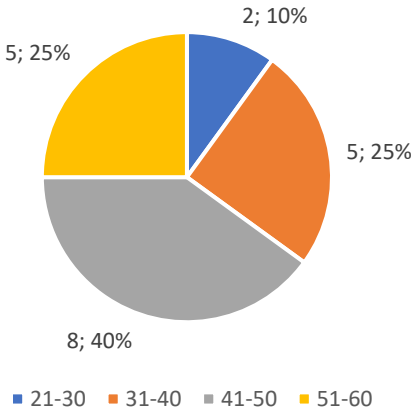


Fig. 2. Age Distribution

Based on Fig. 3, the last time the respondents took antihypertensive medication, 16 respondents (80%) took it more than 8 hours ago, and 4 respondents (20%) took it less than 8 hours ago. Regarding the type of medication (see Fig. 4), 11 respondents (55%) took amlodipine, and 9 respondents (45%) took captopril.

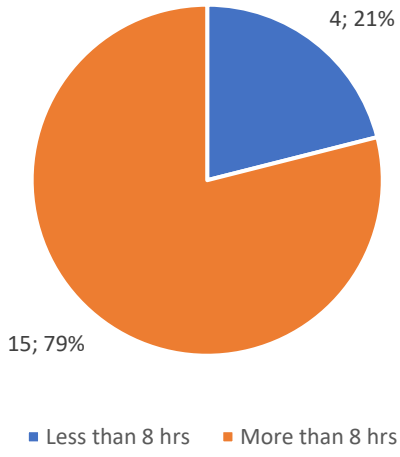


Fig. 3. Last time took medication

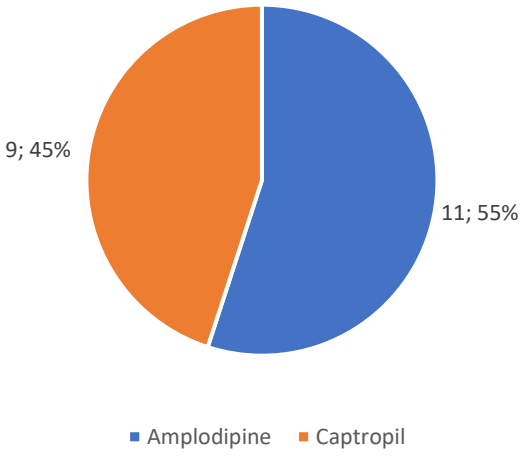


Fig. 4. Type of medication

Table 1 shows, as for hypertension stage, 2 respondents (10%) had stage 2 hypertension. After cupping therapy, the blood pressure levels were as follows: 5 respondents (25%) were normal, 13 respondents (65%) had prehypertension, 1 respondent (5%) had stage 1 hypertension, and 2 respondents (10%) had stage 2 hypertension.

Table 1. Hypertension Level

Level	Before	After
Normal	0	5
Pre Hypertention	4	13
Hypertension Stage I	14	1
Hypertension Stage II	2	1
Total	20	20

B. Bivariate Analysis

Based on Table 2, the respondents' blood pressure showed a minimum systolic of 130 mmHg and a maximum of 160 mmHg, with a mean value, while the diastolic blood pressure ranged from a minimum of 80 mmHg to a maximum of 100 mmHg, with a mean value of 89.5. Based on Table 4.6, the systolic blood pressure after therapy ranged from a minimum of 110 mmHg to a maximum of 140 mmHg, with a mean of 122.5. The diastolic pressure ranged from a minimum of 70 mmHg to a maximum of 90 mmHg, with a mean of 78.5.

Table 2. Blood pressure Before and After Therapy

	Variables	N	Min	Max	Mean
Before	Systolic	20	130	160	143
	Diastolic	20	80	100	89.5
After	Systolic	20	110	140	122.5
	Diastolic	20	70	90	78.5

In Table 3, the Shapiro-Wilk test for normality showed significant values: pre-test systolic (0.023), post-test systolic (0.007), pre-test diastolic (0.000), and post-test diastolic (0.000). Since $p < 0.05$, the data for pre-test and post-test cupping therapy did not follow a normal distribution, which justifies the use of the Wilcoxon test.

Table 3. Shapiro-Wilk test for normality

	Shapiro-Wilk		
Variable	Statistics	Df	Sig.
Pre Test Systolic	0.886	20	0.023
Post Test Systolic	0.859	20	0.007
Pre Test Diastolic	0.768	20	0.000
Post Test Diastolic	0.754	20	0.000

From Table 4, after cupping therapy, 17 respondents (Negative Ranks) experienced a decrease in systolic blood pressure compared to before the therapy, while 0 respondents (Positive Ranks) had an increase in systolic blood pressure, and 3 respondents (Ties) had no change in systolic pressure.

Table 4. Wilcoxon Signed Rank Test Systolic

Results	N
Negative Ranks	17
Positive Ranks	0
Ties	3
Total	20

For diastolic blood pressure, 16 respondents (Negative Ranks) showed a decrease in diastolic pressure after cupping therapy, 0 respondents (Positive Ranks) had an increase, and 4 respondents (Ties) had no change (Table 5).

Table 5. Wilcoxon Signed Rank Test Diastolic

Results	N
Negative Ranks	16
Positive Ranks	0
Ties	4
Total	20

Based on Table 6, the statistical test results for systolic blood pressure were Z = -3.680 and for diastolic blood pressure, Z = -3.660. The Asymp. Sig (2-tailed) values for both were 0.000, which is smaller than 0.05, indicating a significant change in blood pressure before and after cupping therapy.

Table 6. Wilcoxon Test

	Pre Test- Post Test	
	Systolic	Diastolic
Z	-3.680	-3.660
Asymp. Sig. (2-tailed)	0.000	0.000

Discussion

A. Blood Pressure Before Cupping Therapy

Based on Table 4.1, the study conducted on 20 respondents showed that the majority of hypertensive patients were aged 41-50 years, representing 40% (8 respondents). This result indicates that as age increases, the risk of developing hypertension also increases. This is in line with Maulia et al. [9], who state that after the age of 40, the arterial walls thicken due to collagen accumulation in the muscle layer, causing the blood vessels to gradually narrow and

become stiffer. Narrowed blood vessels due to aging affect blood circulation, resulting in an increase in blood pressure.

The study also found that the majority of respondents with hypertension were male, with 11 respondents (55%). This result indicates that men are more likely to develop hypertension. This finding is supported by the study of Rosidawati & Nurahmi [10], which found that 65% of respondents (13 males) were male, while 35% (7 females) were female. Men are at higher risk for hypertension due to lifestyle factors such as smoking and greater workloads, which are more commonly experienced by men [11].

Before cupping therapy, the mean systolic blood pressure was 143 mmHg, and the mean diastolic blood pressure was 89.5 mmHg, with the most common hypertension stage being stage 1, affecting 14 respondents (70%). This indicates that the blood pressure measured was the baseline before cupping therapy. Increased arterial pressure can occur in several ways, including increased heart workload to pump more fluid each second, stiffening of large arteries which cannot expand as the heart pumps blood, and increased fluid volume in circulation, among others. Incorrect renin secretion can also lead to higher blood pressure [12].

B. Blood Pressure After Cupping Therapy

After cupping therapy, the mean blood pressure decreased from 143/89.5 mmHg to 122.5/78.5 mmHg, showing a difference of 20.5/11 mmHg. The most common hypertension level after therapy was pre-hypertension, with 13 respondents (65%) and normal blood pressure in 5 respondents (25%). This result is consistent with the research by Asis et al. [13], which showed an average pre-intervention blood pressure of 168/93.5 mmHg, and after cupping therapy, the mean value was 140/80 mmHg. Another study on the effect of cupping therapy on blood pressure in hypertensive patients at Miftahusyifa Alternative Medicine in Bengkulu City showed a mean blood pressure of 154/96 mmHg before cupping and 127/81 mmHg after therapy [14].

Cupping therapy affects blood pressure in several ways, such as calming the sympathetic nervous system. The disturbances in the sympathetic nervous system stimulate the secretion of enzymes involved in the angiotensin-renin system. Once this system calms down and its activity decreases, blood pressure will drop. Additionally, this process helps regulate the aldosterone hormone and reduce the blood volume circulating through the blood vessels. Cupping reduces blood volume, which in turn reduces blood pressure [5]. After cupping therapy, 5 respondents experienced a reduction in blood pressure to normal levels. This shows that wet cupping therapy helps reduce fat and cholesterol levels and absorbs stagnant blood in the blood vessel walls, reducing blockages. Cupping therapy also improves blood flow throughout the body, expanding blood vessel walls and leading to lower blood pressure [15].

C. Effect of Cupping Therapy on Blood Pressure

The Wilcoxon test showed a p-value of 0.000 for systolic blood pressure and 0.000 for diastolic blood pressure before and after cupping therapy, both less than 0.05. This indicates a significant effect of cupping therapy on both systolic and diastolic blood pressure. These results align with the study by Sutriyono et al. [16], which found p-values of systolic p=0.000 and diastolic p=0.000, meaning they were both <0.05. Similar results were found in a study by Syahruramdhani [17] on the effects of cupping therapy on blood pressure in hypertensive patients, where the p-value for systolic pressure was 0.000 and for diastolic pressure was 0.003 (both <0.05), showing a significant effect on both systolic and diastolic blood pressure.

According to Almi & Muqsith [18], the effect of cupping therapy on lowering blood pressure involves applying cups to the skin, which affects the underlying tissue. The suction and small cuts made during cupping cause minor damage to the tissue, releasing substances such as serotonin, histamine, bradykinin, and Slow Reaction Substances (SRS). These substances trigger capillary and arteriolar dilation and an inflammatory reaction at the cupping points. Dilation can also occur at locations distant from the cupping sites, improving blood circulation. This leads to muscle relaxation and vasodilation, ultimately lowering blood pressure.

The decrease in both systolic and diastolic blood pressure after cupping therapy is caused by the suction effect on the skin and subcutaneous tissue, which causes damage to mast cells in the area [19]. This damage stimulates the release of chemical mediators such as serotonin, histamine, bradykinin, and SRS, which lead to vasodilation of capillaries and arterioles and a flare reaction at the cupping sites.

Based on the study results, not all respondents experienced a reduction in blood pressure after cupping therapy. For systolic blood pressure, 3 respondents, and for diastolic blood pressure, 4 respondents did not experience any change, either an increase or a decrease. This could be because these respondents had consumed antihypertensive medication more than 8 hours before the therapy. For those who experienced a decrease in blood pressure after therapy, 17 respondents showed a reduction in systolic pressure, and 16 respondents showed a reduction in diastolic pressure. The researcher concludes that the reduction in blood pressure is not only due to cupping therapy, but also the timing of antihypertensive medication, with those who consumed medication less than 8 hours before therapy showing greater changes. According to Medscape [20] and PubMed [21], antihypertensive medication peaks in 1-8 hours to lower blood pressure in hypertensive patients.

Blood pressure measurements were taken 10 minutes before and after cupping therapy to stabilize the blood pressure. This is consistent with the study by Nikolic et al. [22], which evaluated the necessary rest period to lower blood pressure in healthcare facilities and at

home. The study concluded that Slow Reaction Substances (SRS) lead to vasodilation of blood vessels, which lowers blood pressure. Additionally, blood pressure can be influenced by factors such as age, gender, rest period, and antihypertensive medications.

Conclusion

The study conducted on 20 respondents at Griya Bekam Az-Zahra in 2024 revealed several key findings. The majority of participants were aged 41-50 years, with a higher number of males (11 respondents) compared to females (9 respondents). All respondents received cupping therapy according to SOP, and most had taken antihypertensive medication more than 8 hours before therapy. Blood pressure measurements before therapy showed a mean systolic of 143 mmHg and a mean diastolic of 89.5 mmHg, while post-therapy measurements showed a reduction to a mean systolic of 122.5 mmHg and a mean diastolic of 78.5 mmHg. Statistical analysis using the Wilcoxon test showed significant changes (p = 0.000), indicating that cupping therapy effectively reduced blood pressure in hypertensive patients.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

[1] Kemenkes RI. (2014). *Panduan praktik klinis bagi dokter di fasilitas pelayanan kesehatan primer*. Jakarta: Kementerian Kesehatan Republik Indonesia.
[2] WHO. (2018). *Global health estimates 2016: Deaths by cause, age, sex, by country and by region, 2000-2016*. Geneva: World Health Organization.
[3] Riskesdas. (2018). Badan Penelitian dan Pengembangan Kesehatan Kementerian RI tahun 2018. Retrieved from https://kesmas.kemkes.go.id/assets/upload/dir_519d41d8cd98f00/files/Hasil-riskesdas-2018_1274.pdf
[4] Aboushanab, T. S., & AlSanad, S. (2018). Cupping therapy: an overview from a modern medicine perspective. *Journal of acupuncture and meridian studies*, *11*(3), 83-87.
[5] Sharaf, A. R. (2012). *Penyakit dan terapi bekamnya* (Penerjemah Hawin Murtadlo). Surakarta: Thibbia.
[6] Mehta, P., & Dhapte, V. (2015). Cupping therapy: A prudent remedy for a plethora of medical ailments. *Journal of traditional and complementary medicine*, *5*(3), 127-134.
[7] Su, C., Xue, J., Ye, C., & Chen, A. (2021). Role of the central renin-angiotensin system in hypertension. *International journal of molecular medicine*, *47*(6), 95.
[8] Muflih, M., & Judha, M. (2019). Effectiveness of blood pressure reduction reviewed from amount of kop, duration and location of point of bekam therapy. *NurseLine Journal*, *4*(1), 46-53.
[9] Maulia, M., & Hengky, H. K. (2021). Analisis kejadian penyakit hipertensi di Kabupaten Pinrang. *Jurnal Ilmiah Manusia Dan Kesehatan*, *4*(3), 324-331.
[10] Rosidawati, I., & Nurahmi, I. (2016). Pengaruh terapi bekam basah terhadap tekanan darah pada pasien hipertensi. *Community Publ Nurs*, *4*(3), 1-9.
[11] Tumanduk, W. M., Nelwan, J. E., & Asrifuddin, A. (2019). Faktor-faktor risiko hipertensi yang berperan di Rumah Sakit Robert Wolter Mongisidi. *e-CliniC*, *7*(2), 152-163.
[12] Udjianti, W. (2013). *Keperawatan kardiovaskular*. Jakarta: Salemba Medika.
[13] Asis, A. S., Fadli, F., & Kenre, I. (2021). Pengaruh Terapi Bekam Basah Terhadap Penurunan Tekanan Darah Pada Pasien Hipertensi. *Jurnal Pendidikan Keperawatan dan Kebidanan*, *1*(1), 13-19.
[14] Sardaniah, S., & Marlena, F. (2020). Pengaruh terapi bekam terhadap penurunan tekanan darah pada penderita hipertensi di pondok pengobatan alternatif miftahusyifa. *Jurnal Vokasi Keperawatan (JVK)*, *3*(1), 85-102.

[15] Anam, K. (2019). *Pengaruh Terapi Bekam Basah Terhadap Tekanan Darah Pada Penderita Hipertensi* (Doctoral dissertation, STIKes Insan Cendekia Medika Jombang).
[16] Sutriyono, S., Robbina, M. R., & Ndii, M. Z. (2019). The effects of wet cupping therapy in blood pressure, glucose, uric acid and total cholesterol levels. *Biology, Medicine, & Natural Product Chemistry, 8*(2), 33-36.
[17] Syahruramdhani, S., Yuniarti, F. A., Septiana, T. E., & Mustikasari, E. (2021). The effect of wet cupping therapy on blood pressure and total cholesterol on healthy young male adults. *Open Access Macedonian Journal of Medical Sciences*, *9*(T4), 172-176.
[18] Almi, E. A., & Al-Muqsith, A. M. (2015). Pengaruh Terapi Bekam terhadap Tekanan Darah Sistolik dan Diastolik pada Pasien di Klinik Sehat DR. Abdurrahman Kota Medan Tahun 2014. *Samudera*, *9*(1), 35-46.
[19] Khoir, W. M. A. (2018). *Terapi Bekam Sebagai Upaya Menurunkan Tekanan Darah Pada Penderita Hipertensi di Pusat Pelatihan dan Pengobatan Crew Bekam Yayasan Abasa Kediri* (Doctoral dissertation, IAIN Kediri).
[20] Medscape. (2022). *Captopril (Rx)*. Retrieved from https://reference.medscape.com/drug/capoten-captopril-342315#10
[21] Pubmed. (2022). *Farmakokinetik dan farmakodinamik amlodipine*. Retrieved from https://pubmed.ncbi.nlm.nih.gov/1534/713/
[22] Nikolic, S. B., Abhayaratna, W. P., Leano, R., Stowasser, M., & Sharman, J. E. (2014). Waiting a few extra minutes before measuring blood pressure has potentially important clinical and research ramifications. *Journal of human hypertension*, *28*(1), 56-61.

Authors



Luthfi Firmanda is an undergraduate student in the Nursing Program at Universitas Muhammadiyah Pringsewu Lampung. He has a background in nursing and is passionate about contributing to the healthcare field by providing optimal nursing care. Luthfi is also committed to furthering his education by deepening his knowledge and skills in clinical practice to become a highly skilled and compassionate nurse. His dedication to the profession drives him to stay updated with the latest nursing practices and enhance his understanding of patient care. (email: Luthfifirmanda6@gmail.com).



Reni Tri Subekti is a lecturer in the Nursing Program at Universitas Muhammadiyah Pringsewu Lampung. She completed her undergraduate studies at Universitas Malahayati Lampung in 2015 and pursued her nursing profession at Poltekkes Tanjung Karang. With a solid foundation in nursing education and clinical practice, Reni is dedicated to fostering the growth of future nurses by teaching and guiding students in the field of nursing. She is committed to improving the quality of healthcare services and developing her expertise in nursing education. (email: renitri340@gmail.com).



Apri Budianto is a lecturer in the DIII Nursing Program at Universitas Muhammadiyah Pringsewu Lampung. He completed his Nursing Profession and Master's in Nursing at Universitas Indonesia in 2014. With a strong academic background and extensive clinical experience, Apri is passionate about providing nursing education that emphasizes both theoretical knowledge and practical skills. He is dedicated to advancing nursing care through research and contributing to the development of high-quality healthcare professionals. Apri strives to inspire and empower his students to become skilled and compassionate nurses. (email: apribudianto@umpri.ac.id).



Arena Lestari is a nursing lecturer at the Faculty of Health, Universitas Muhammadiyah Pringsewu. She completed her Doctorate in Nursing at MAHSA University, Malaysia, in 2023. Arena has a deep commitment to advancing nursing education and improving healthcare practices through research and teaching. With her expertise in nursing, she aims to prepare future nurses with the skills, knowledge, and ethical standards necessary for effective patient care. Arena is dedicated to creating an environment that promotes both academic excellence and holistic care in the nursing field. (email: arenalestari@umpri.ac.id).