



APPLICATION OF ACUPRESSURE THERAPY TO REDUCE BLOOD PRESSURE IN HYPERTENSION PATIENTS

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ABSTRACT

Hypertension is a condition of increased systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg, which has the potential to cause various cardiovascular complications if not optimally managed. Hypertension can be managed through pharmacological and non-pharmacological therapies. One non-pharmacological method that can be used is acupressure therapy, a stimulation technique in the form of pressure on certain points on the body that aims to increase relaxation and improve blood circulation. This study aims to determine the effectiveness of applying acupressure therapy in reducing blood pressure in hypertension patients. The research method used is qualitative research with a descriptive case study approach. The study subjects consisted of four respondents with hypertension. Data collection was carried out through interviews, observations, physical examinations, and blood pressure measurements before and after the intervention according to standard operating procedures. The acupressure therapy intervention was carried out for two weeks with a total of six meetings. Data was analyzed using thematic analysis. The results showed that before the intervention, the respondents' blood pressure was in the range of 150–170 mmHg for systolic and 90–110 mmHg for diastolic. After acupressure therapy, all respondents experienced a decrease in blood pressure, with systolic blood pressure ranging from 8–14 mmHg and diastolic blood pressure between 10–14 mmHg. These results indicate that acupressure therapy is effective in lowering blood pressure in patients with hypertension. Acupressure therapy can be considered a complementary non-pharmacological intervention in the management of hypertension.

Keywords: acupressure; blood pressure; hypertension; non-pharmacological therapy

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INTRODUCTION

Hypertension is a public health problem characterized by elevated systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg. This condition is chronic and often asymptomatic, making it known as the silent killer (Susmitha et al., 2024). Hypertension is a major risk factor for various cardiovascular diseases, such as coronary heart disease, stroke, and kidney failure, which can significantly increase morbidity and mortality (Trianaputri & Rantung, 2025). According to the World Health Organization (WHO), hypertension is a leading cause of death worldwide, with an estimated 17.9 million deaths annually (Siswati et al., 2023). Globally, approximately 1.1 billion people live with high blood pressure, and this number continues to rise. The WHO estimates that by 2022, 972 million people, or approximately 26.4% of the world's population, will suffer from hypertension, and this figure is projected to increase to 29.2% by 2025. This increasing prevalence demonstrates that hypertension is a global health challenge that requires comprehensive and sustainable management efforts (Nursadrina et al., 2025).

In Indonesia, hypertension is also a serious health problem. The Kemenkes RI, (2018) data shows that the number of people with hypertension reached 63,309,620 people, with a mortality rate due to hypertension of 427,218 people. The highest prevalence of hypertension was found in North Sulawesi Province at 13.2%, while the lowest prevalence was in Papua Province at 4.4%. Meanwhile, DKI Jakarta ranked fifth with a hypertension prevalence of 10.17%. The prevalence of

hypertension increases with age, with the highest proportion in the age group ≥ 55 years, reaching more than 50%.

Data from the Jakarta Provincial Health Office in 2022 showed that the prevalence of hypertension among residents aged 18 years and older reached 34.95%, with a slightly higher proportion of female sufferers (35.24%) than male sufferers (34.39%). East Jakarta was recorded as one of the regions with the highest number of hypertension cases, with 6,342 cases in 2022. The high prevalence of hypertension in urban areas reflects the influence of lifestyle, stress, and lack of physical activity on the increased risk of hypertension (Septianingsih, 2018).

Optimal hypertension management requires a holistic approach through pharmacological and non-pharmacological interventions. Pharmacological therapy aims to control blood pressure clinically, while non-pharmacological therapy plays an effective supportive role in preventing complications and improving the patient's quality of life (Ramadhan et al., 2020). Non-pharmacological therapy has advantages because it is relatively safe, easy to implement, affordable, and has minimal side effects. Some complementary therapies that can be implemented in nursing practice for patients with hypertension include meditation, yoga, autogenic therapy, and acupressure (Utami et al., 2021).

Acupressure therapy is a form of complementary therapy that involves applying pressure or massage to specific acupuncture points on the body. According to Khafifa et al., (2024), acupressure works by stimulating the nervous system through specific points associated with organ function. Acupressure stimulation can trigger the release of histamine by mast cells, a mediator of blood vessel vasodilation, thereby improving blood circulation, providing a relaxing effect, and contributing to lowering blood pressure. Acupressure is generally performed by applying pressure or vibration for 15–30 seconds at each designated point.

The benefits of acupressure therapy in controlling blood pressure are also supported by the release of endorphins, which function as natural neurotransmitters to reduce tension and promote relaxation. Stimulation of these points has been shown to improve blood circulation, reduce blood vessel spasms, and lower blood pressure. Previous research has shown that acupressure therapy is effective in lowering blood pressure in people with hypertension. Research conducted by Kurniyawan, (2016) concluded that acupressure techniques can improve blood vessel circulation and lower blood pressure through nerve stimulation. This finding is supported by research by Saputra et al., (2020), which states that applying acupressure to specific points can stimulate nerve impulses, promote relaxation, and help lower blood pressure. Therefore, acupressure therapy has the potential to be an effective and applicable non-pharmacological intervention in nursing care for people with hypertension. Given these challenges, this study aims to determine the effectiveness of acupressure therapy in lowering blood pressure in hypertensive patients.

METHOD

This research employed a qualitative research design with a case study approach. The case study approach was chosen to explore in-depth a phenomenon or problem with clearly defined contexts through comprehensive data collection from various sources. The case studied in this study focused on the application of acupressure therapy to lower blood pressure in patients with hypertension. The research was conducted in East Jakarta, with four respondents suffering from hypertension. This case study aimed to provide a detailed overview of the process and results of applying acupressure therapy as a non-pharmacological intervention in managing hypertension. Data collection was conducted through several techniques, including interviews, observation, and documentation. Interviews were conducted directly with respondents to obtain information regarding their health conditions, experiences, and perceptions of the application of acupressure therapy in lowering blood

pressure. This interview technique aimed to elicit respondents' perspectives in depth through structured and semi-structured questions.

Observations were conducted through systematic observation of the respondents' conditions, accompanied by direct physical examinations, specifically blood pressure measurements, to obtain objective data regarding the respondents' health status and response to the intervention. Meanwhile, documentation was used as a supporting technique in data collection, including recording measurement results, nursing notes, and other documents or archives relevant to the research subjects. By combining these three data collection techniques, it is hoped that comprehensive and in-depth data will be obtained regarding the effectiveness of acupressure therapy in reducing blood pressure in patients with hypertension. Data was analyzed using thematic analysis.

RESULT

Respondence 1

To evaluate the application of the therapy from the first to the sixth day, researchers created a comparison table between blood pressure measurements before and after therapy to provide a clearer picture of changes in blood pressure.

Table 1.
Evaluation of the Application of Acupressure Therapy on Blood Pressure

Day/ Date Therapy	Time	Blood pressure before Acupressure	Time	Blood pressure after Acupressure Therapy
Tuesday, May 20, 2025	10.00	165/108 mmHg	10.30	161/105 mmHg
Thursday, May 22, 2025	09.30	169/106 mmHg	10.00	164/100 mmHg
Saturday, May 24, 2025	11.00	174/105 mmHg	11.30	168/101 mmHg
Monday, May 26, 2025	10.00	176/109 mmHg	10.30	166/99 mmHg
Wednesday, May 28, 2025	17.00	172/104 mmHg	17.30	160/96 mmHg
Friday, May 30, 2025	15.00	169/102 mmHg	15.30	157/94 mmHg

Based on the evaluation results of the table above, after six sessions of therapy within two weeks, Mrs. M experienced a gradual decrease in blood pressure. On the first day, the blood pressure value was 165/108 mmHg, an intervention was carried out with acupressure therapy, for approximately 30 minutes. Before the therapy was carried out, the researcher applied oil to the hands and feet, after which a massage was performed in the area to be treated. On the hands, therapy was carried out at points PC (Neiguan), and LI 4 (Hegu), while, on the feet, therapy was carried out at points such as LR 3 (Taichong), LR 2 (Xingjian), SP 6 (Sanyinjiao), and KI 3 (Taixi). Furthermore, the researcher evaluated the blood pressure every time during the six sessions, after the intervention was carried out. From the results of the evaluation on the last day, it was found that there was a decrease in blood pressure in the first respondent to 157/94 mmHg.

Respondence 2

To evaluate the application of the therapy from the first to the sixth day, researchers created a comparison table between blood pressure measurements before and after therapy to provide a clearer picture of blood pressure changes.

Table 2.
Evaluation of the Application of Acupressure Therapy on Blood Pressure

Day/ Date Therapy	Time	Blood pressure before Acupressure	Time	Blood pressure after Acupressure Therapy
Tuesday, May 20, 2025	11.00	150/100 mmHg	11.30	144/96 mmHg
Thursday, May 22, 2025	10.30	147/99 mmHg	11.00	142/95 mmHg
Saturday, May 24, 2025	10.00	157/108 mmHg	10.30	143/94 mmHg
Monday, May 26, 2025	11.30	155/96 mmHg	12.00	140/92 mmHg
Wednesday, May 28, 2025	13.00	157/108 mmHg	13.30	145/105 mmHg
Friday, May 30, 2025	11.00	144/94 mmHg	11.30	137/90 mmHg

Based on the evaluation results of the table above, after six therapy sessions within two weeks. The results showed a gradual change in blood pressure in respondent Mrs. N, especially in diastolic

values. Although systolic blood pressure values fluctuated due to lifestyle and emotional factors, in general each therapy session succeeded in lowering blood pressure. On the first day, the blood pressure value was 150/100 mmHg, an intervention was carried out with acupressure therapy, for approximately 30 minutes. Before the therapy was carried out, the researcher applied oil to the hands and feet, after which a massage was carried out in the area to be treated. On the hands, therapy was carried out at points PC (Neiguan), and LI 4 (Hegu), while, on the feet, therapy was carried out at points such as LR 3 (Taichong), LR 2 (Xingjian), SP 6 (Sanyinjiao), and KI 3 (Taixi). Furthermore, the researcher evaluated blood pressure every time during the six sessions, after the intervention was carried out. The evaluation results on the final day revealed a decrease in blood pressure in the first respondent to 137/90 mmHg.

Respondent 3

To evaluate the application of the therapy from the first to the sixth day, the researchers created a comparison table between the blood pressure measurements before and after the therapy to provide a clearer picture of the changes in blood pressure.

Table 3.
Evaluation of the Application of Acupressure Therapy on Blood Pressure

Day/ Date Therapy	Time	Blood pressure before Acupressure	Time	Blood pressure after Acupressure Therapy
Tuesday, May 20, 2025	11.00	155/95 mmHg	11.30	153/93 mmHg
Thursday, May 22, 2025	13.15	159/102 mmHg	13.45	150/91 mmHg
Saturday, May 24, 2025	14.00	164/97 mmHg	14.30	158/92 mmHg
Monday, May 26, 2025	13.30	150/93 mmHg	14.00	144/88 mmHg
Wednesday, May 28, 2025	14.00	158/95 mmHg	14.30	146/90 mmHg
Friday, May 30, 2025	11.00	157/92 mmHg	11.30	146/85 mmHg

Based on the evaluation results of the table above, after six therapy sessions within two weeks, the results showed a gradual change in blood pressure in respondent Mrs. B, supported by behavioral changes such as a healthier diet and light physical activity. On the first day, the blood pressure value was 155/95 mmHg, and an intervention was performed with acupressure therapy for approximately 30 minutes. Before the therapy, the researcher applied oil to the hands and feet, after which a massage was performed in the area to be treated. On the hands, therapy was performed at points PC (Neiguan) and LI 4 (Hegu), while on the feet, therapy was performed at points such as LR 3 (Taichong), LR 2 (Xingjian), SP 6 (Sanyinjiao), and KI 3 (Taixi). Furthermore, the researcher evaluated blood pressure every time during the six sessions after the intervention was carried out. The evaluation results on the final day revealed a decrease in blood pressure in the first respondent to 146/85 mmHg.

Respondent 4

To evaluate the application of therapy from the first to the sixth day, the researchers created a comparison table between blood pressure measurements before and after therapy to provide a clearer picture of changes in blood pressure.

Table 4.
Evaluation of the Application of Acupressure Therapy on Blood Pressure

Day/ Date Therapy	Time	Blood pressure before Acupressure	Time	Blood pressure after Acupressure Therapy
Tuesday, May 20, 2025	15.00	168/102 mmHg	15.30	155/96 mmHg
Thursday, May 22, 2025	14.30	164/97 mmHg	15.00	157/89 mmHg
Saturday, May 24, 2025	14.00	162/94 mmHg	14.30	154/89 mmHg
Monday, May 26, 2025	13.30	164/97 mmHg	14.00	156/92 mmHg
Wednesday, May 28, 2025	15.00	160/96 mmHg	15.30	154/95 mmHg
Friday, May 30, 2025	16.30	163/93 mmHg	17.00	154/91 mmHg

Based on the evaluation results in the table above, after six therapy sessions over a two-week period, the results showed a significant change in blood pressure in respondent Mrs. Mn at each session. On the first day, her blood pressure was 168/102 mmHg. Acupressure therapy was

administered for approximately 30 minutes. Prior to the therapy, the researcher applied oil to the hands and feet, followed by a massage in the treatment area. The hands were treated at points PC (Neiguan) and LI 4 (Hegu), while the feet were treated at points LR 3 (Taichong), LR 2 (Xingjian), SP 6 (Sanyinjiao), and KI 3 (Taixi). The researchers then evaluated her blood pressure at each of the six sessions following the intervention. The final evaluation revealed a decrease in blood pressure in the first respondent, to 154/91 mmHg.

Table 5.

Average blood pressure reduction before and after intervention

Respondence	Before intervention		After intervention	
	Systolic	Diastolic	Systolic	Diastolic
1. Mrs. M	170.83 mmHg	105.67 mmHg	162.67 mmHg	99.17 mmHg
2. Mrs. N	151.67 mmHg	100.83 mmHg	141.83 mmHg	95.33 mmHg
3. Mrs. B	157.17 mmHg	95.67 mmHg	149.50 mmHg	89.83 mmHg
4. Mrs. Mn	163.50 mmHg	96.50 mmHg	155.00 mmHg	92.00 mmHg

Based on the measurement results table, it can be seen that the average blood pressure of all respondents decreased after acupressure therapy. In the first respondent, Mrs. M, the average systolic blood pressure before therapy was 170.83 mmHg, and diastolic 105.67 mmHg. After therapy, there was a decrease in blood pressure with a systolic value of 162.67 mmHg, and a diastolic of 99.17 mmHg, with a difference in decrease of 8.16 mmHg (systolic), and 6.5 mmHg (diastolic). In the second respondent, Mrs. N, the average systolic blood pressure before therapy was 151.67 mmHg, and diastolic 100.83 mmHg. After therapy, the average systolic value became 141.83 mmHg, and diastolic 95.33 mmHg. The following average values indicate a decrease in blood pressure after the intervention, with a difference of 9.83 mmHg (systolic) and 5.5 mmHg (diastolic).

In the third respondent, Mrs. B, the average systolic blood pressure before therapy was 157.17 mmHg and 95.67 mmHg diastolic. After therapy, the average systolic blood pressure was 149.50 mmHg and 89.83 mmHg diastolic. The following average values indicate a decrease in blood pressure after the intervention, with a difference of 7.67 mmHg (systolic) and 5.84 mmHg (diastolic). In the fourth respondent, Mrs. Mn, the average systolic blood pressure before therapy was 163.50 mmHg and 96.50 mmHg diastolic. After therapy, the average systolic value was 155.00 mmHg and the diastolic value was 92.00 mmHg. The following average values indicate a decrease in blood pressure after the intervention, with a difference of 4.5 mmHg (systolic) and 4.5 mmHg (diastolic).

DISCUSSION

The results of the study showed that before receiving acupressure therapy, all respondents were hypertensive, with systolic blood pressure ranging from 150–170 mmHg and diastolic blood pressure between 90–110 mmHg. This finding aligns with the criteria for hypertension according to clinical guidelines, which state that blood pressure $\geq 140/90$ mmHg is considered hypertension. High blood pressure in all respondents indicates impaired blood pressure regulation, which could potentially increase the risk of cardiovascular complications if not properly managed.

After two weeks of regular acupressure therapy, all respondents experienced a decrease in both systolic and diastolic blood pressure. The decrease in systolic blood pressure ranged from 8–14 mmHg, while diastolic blood pressure decreased between 10–14 mmHg. These results indicate that acupressure therapy has a positive effect on blood pressure control in hypertensive patients. The decrease in blood pressure in all respondents indicates that the intervention was well-tolerated and produced a consistent physiological response. Physiologically, the decrease in blood pressure after acupressure therapy can be explained by the stimulation of specific acupressure points that play a role in regulating the autonomic nervous system (Tasić et al., 2022). This stimulation can decrease sympathetic nerve activity and increase parasympathetic activity, resulting in peripheral vasodilation, decreased vascular resistance, and increased body relaxation. Furthermore,

acupressure therapy can also stimulate the release of endorphins and vasodilatory mediators such as histamine, which contribute to increased blood flow and lower blood pressure (Galiero et al., 2023). The results of this study align with those of Saputra et al., (2020), who found acupressure therapy effective in improving blood circulation and lowering blood pressure in patients with hypertension. Another study by Utami et al., (2021) also showed that acupressure stimulation at specific points can stimulate nerve impulses that provide relaxation, reduce blood vessel spasms, and significantly lower blood pressure. These similar results strengthen the evidence that acupressure therapy can be used as an effective non-pharmacological intervention in the management of hypertension.

However, the reduction in blood pressure observed in respondents may also be influenced by other factors, such as their level of compliance with the intervention, psychological state, activity patterns, and daily lifestyle. However, the consistent reduction in blood pressure in all respondents after the intervention indicates that acupressure therapy plays an important role as a complementary therapy in lowering blood pressure (Mandal et al., 2022). Therefore, the results of this study support the use of acupressure therapy as a non-pharmacological intervention in nursing care for patients with hypertension. This therapy is relatively easy to implement, safe, and can be performed independently with the assistance of a healthcare professional, thus potentially improving blood pressure control and quality of life for patients with hypertension (Siswati et al., 2023).

These results indicate that acupressure therapy is effective in lowering blood pressure. However, this reduction is temporary and does not last long-term. If therapy is discontinued, blood pressure tends to rise again. This is consistent with the mechanism of action of acupressure, which emphasizes relaxation and nerve stimulation to reduce stress and improve blood circulation. Without lifestyle changes and risk factor management, blood pressure will rise again. This research aligns with Nursadrina et al., (2025) who stated that acupressure therapy is effective in significantly lowering blood pressure. However, the greatest reduction occurs immediately after therapy, decreasing gradually after 15 to 30 minutes, and the effect is not long-term without continued therapy. The mechanism of blood pressure reduction occurs through stimulation of points Pc 6 (Neiguan), Li 4 (Hegu), Lr 3 (Taichong), Lr 2 (Xingjian), Sp 6 (Sanyinjiao), and Ki 3 (Taixi), which affect sensory nerves and transmit signals to the hypothalamus-pituitary gland, stimulating the release of endorphins.

CONCLUSION

Based on the results of this study, a description of the application of acupressure therapy to reduce blood pressure in hypertension patients in RT.010/RW.002, Bambu Apus Village, East Jakarta, indicates that acupressure therapy is effective in lowering blood pressure in hypertensive patients, although only temporarily. The intervention involved massage at points such as Pc 6 (Neiguan), Li 4 (Hegu), Lr 3 (Taichong), Lr 2 (Xingjian), Sp 6 (Sanyinjiao), and Ki 3 (Taixi) for six sessions over two weeks, each lasting 15–30 minutes. After the therapy, all respondents experienced a significant reduction in blood pressure. This indicates that acupressure therapy is a non-pharmacological therapy that can lower blood pressure in the short term.

REFERENCES

- Galiero, R., Caturano, A., Vetrano, E., Beccia, D., Brin, C., Alfano, M., Di Salvo, J., Epifani, R., Piacevole, A., Tagliaferri, G., Rocco, M., Iadicicco, I., Docimo, G., Rinaldi, L., Sardu, C., Salvatore, T., Marfella, R., & Sasso, F. C. (2023). Peripheral Neuropathy in Diabetes Mellitus: Pathogenetic Mechanisms and Diagnostic Options. *International Journal of Molecular Sciences*, 24(4). <https://doi.org/10.3390/ijms24043554>
- Kemkes RI. (2018). *Hasil Utama Riskesdas 2018*. Kementrian Kesehatan Republik Indonesia.
- Khafifa, D., Pratiwi, N., Indonesia, M., Gowa, S. K., Selatan, S., Pemenuhan, G., Dasar, K., & Menggunakan, O. (2024). Intervensi Breathing Exercise dalam Pemenuhan Kebutuhan Dasar Oksigenasi pada Klien Efusi Pleura. *Alauddin Scientific Journal and Nursing*, 5(1), 1–7.

- Kurniyawan, H. E. (2016). Terapi Komplementer Alternatif Akupresur Dalam Menurunkan Tingkat Nyeri. *NurseLine Journal*, 1(2), 246–256. <https://media.neliti.com/media/publications/197137-ID-acupressure-as-complementary-and-alterna.pdf>
- Mandal, S., Simmons, N., Awan, S., Chamari, K., & Ahmed, I. (2022). Intermittent fasting : eating by the clock for health and exercise performance. *BMJ Open Sport & Exercise Medicine*, 8(1), 8–11. <https://doi.org/10.1136/bmjsem-2021-001206>
- Nursadrina, C., Rahmayanti, K., & Sofia, M. (2025). Pengaruh Stres Terhadap Kesehatan Mental Dan Fisik : Tinjauan Psikologi Klinis. *Journal of Healthcare Technology and Medicine*, 11(1), 701–705. <https://doi.org/https://doi.org/10.33143/jhtm.v11i1.5288>
- Ramadhan, B. Z., Saragih, S. G. R., Natalia, D., Handoko, W., & An, A. (2020). Korelasi Antara Rotterdam Ct Score Sebagai Prediktor Mortalitas Pada Penderita Cedera Kepala Di RSUD Dr Abdul Aziz Kota Singkawang Tahun 2016-2018. *AN-Nur: Jurnal Kajian Dan Pengembangan Kesehatan Masyarakat*, 01(1), 33–43.
- Saputra, R., Mulyadi, B., & Mahathir, M. (2020). Penurunan Tekanan Darah Pada Lansia Penderita Hipertensi Melalui Terapi Spiritual Emotional Freedom Technique (SEFT) dan Akupresur Titik Taichong. *Jurnal Ilmiah Universitas Batanghari Jambi*, 20(3), 942. <https://doi.org/10.33087/jiubj.v20i3.1068>
- Septianingsih, D. G. (2018). Hubungan tingkat pengetahuan dan sikap pasien hipertensi dengan upaya pengendalian hipertensi di wilayah kerja puskesmas Samata. In *Universitas Islam Negeri Alauddin Makassar* (Vol. 8). <http://jurnal.umsb.ac.id/index.php/menarailmu/article/download/877/788>
- Siswati, Sofiyanti, I., Ismawati, I., Puspitasari, D. M., Mafudiah, L., Kue, A. R., & Susanti, R. (2023). Literatur Review : Hubungan MAP (Mean Arterial Pressure), ROT (Roll Over Test) dan IMT (Index Masa Tubuh) / BMI (Body Mass Indeks) dengan Kejadian Preeklampsia pada Ibu Hamil. *Prosiding Seminar Nasional Dan Call for Paper Kebidanan*, 2(1), 34–46.
- Susmitha, M. T., Estri, A. K., & Wijayanti, M. E. (2024). Hubungan Tingkat Pengetahuan Dengan Kepatuhan Pengobatan Pasien Hipertensi Usia Produktif Di Poliklinik Rumah Sakit Swasta Yogyakarta. *Carolus Journal of Nursing*, 6(1), 1–13.
- Tasić, T., Tadić, M., & Lozić, M. (2022). Hypertension in Women. *Frontiers in Cardiovascular Medicine*, 9, 905504. <https://doi.org/10.3389/fcvm.2022.905504>
- Trianaputri, R. A., & Rantung, J. (2025). Faktor-Faktor Yang Mempengaruhi Risiko Terjadinya Hipertensi Pada Mahasiswa Fakultas Ilmu Keperawatan Di Universitas Advent Indonesia. *Jurnal Impresi Indonesia (JII)*, 4(4), 1199–1208. <https://doi.org/10.58344/jii.v4i4.6435>
- Utami, R. J., Indarwati, R., & Pradanie, R. (2021). Analisa Faktor Yang Mempengaruhi Kualitas Tidur Lansia Di Panti. *Jurnal Health Sains*, 2(3), 362–380.

