Journal of Applied Holistic Nursing Science, e-ISSN 3090-1316
Vol. 2, No.3, June 2026
https://doi.org/10.70920/jahns.v2i3.414

Original Research

Effects of Date Seed Coffee as a Complementary Therapy on Blood Pressure Among Hypertensive Patients at Kartini General Hospital

Lisdiana[1], Dewi Woro Astuti[2], Hidayatusy Syukrina Puteri[3]

[1,2,3]Nutrition Study Program, Faculty of Health, Mitra Indonesia University

ABSTRACT

Background: *Hypertension is a very serious health problem worldwide. A person is said to have hypertension if his systolic blood pressure reaches 140 mmHg or more, and his diastolic blood pressure is 90 mmHg or more. One of the alternatives that is developing in the world of herbal medicine is the use of date seeds, one of which is date seed coffee which has the potential to be a complementary therapy for various degenerative diseases, such as hypertension. This study aims to determine the effect of giving date seed coffee on blood pressure in hypertensive patients.*

Methods : *The method used in this study is quantitative using a quasi-experiment design with a sample of 20 respondents. Data will be collected through surveys or observation sheets, and analyzed using appropriate statistical methods such as the paired t test.*

Results: *The results of the study showed the effect of giving date seed coffee on blood pressure in hypertensive patients with a p value of 0.000 < 0.05. The results of this study are expected to make date seed coffee one of the safe, cheap, and practical alternatives to hypertension treatment.*

Conclusion: *Hypertensive patients must also regularly consume antihypertensive drugs and consume nutritious foods to maintain heart health and blood pressure.*

ARTICLE HISTORY
Submitted :.5-5-2026
Published : 1-6-2026

KEYWORDS
Blood Presure, Date Seed Coffe, Hypertension

CONTACT
Lisdiana

lisdiana@gmail.com
Nutrition Study Program, Faculty of Health, Mitra Indonesia University

Cite this as: Lisdiana, Dewi Woro Astuti, Hidayatusy Syukrina Puteri (2026). Effects of Date Seed Coffee as a Complementary Therapy on Blood Pressure Among Hypertensive Patients at Kartini General Hospital, 2(3). https://doi.org/10.70920/jahns.v2i3.414

INTRODUCTION

Hypertension is medically recognized as one of the most serious global health problems. Individuals with hypertension are at a significantly increased risk of developing various diseases, including kidney disease, heart failure, myocardial infarction, and stroke. A person is classified as hypertensive when the systolic blood pressure reaches 140 mmHg or higher and/or the diastolic blood pressure reaches 90 mmHg or higher(Pertiwi Y et al.2021). Hypertension requires special attention because it substantially increases the risk of cardiovascular complications. The management of hypertension relies not only on pharmacological treatment but also on non-pharmacological approaches, including lifestyle modifications and the consumption of foods or beverages that may help lower blood pressure. Uncontrolled hypertension can lead to severe complications such as coronary heart disease,

Kidney failure, stroke, diabetes mellitus and vision loss. Stroke accounts for the highest proportion of hypertension-related mortality (51%), followed by coronary heart disease (45%). Therefore, the increasing prevalence of hypertension should be considered a major public health concern, particularly given the serious complications that may arise when adequate treatment is not provided (Yunafiah, N. 2021). According to the World Health Organization (WHO), hypertension, or high blood pressure, is a major health condition that increases the likelihood of developing stroke, heart disease, kidney disorders, and other chronic diseases. In 2021, an estimated 1.28 billion adults aged 30–79 years worldwide were living with hypertension (Wulandari, N. 2023).

Data from the 2023 Indonesian Health Survey (SKI) indicated that the prevalence of hypertension among individuals aged 18 years and older in Indonesia reached 34.1%. In Lampung Province, approximately 20,484 individuals were reported to have hypertension. According to the Indonesian Ministry of Health (2023), health service data from 2022 recorded 18,195 hypertension cases in Central Lampung Regency (Dinas Kesehatan Provinsi Lampung. 2022). Furthermore, recent data from Kartini General Hospital in Kalirejo revealed a considerable increase in hypertension cases, rising from 166 patients to 298 patients in 2023 (RS Kartini. 2023).

Hypertension is commonly treated through pharmacological approaches using antihypertensive medications. However, prolonged use of such medications may be associated with adverse effects and the potential development of drug resistance (Azrada, F.2021). Consequently, non-pharmacological interventions and alternative therapies have gained increasing attention as supportive strategies for blood pressure management that are considered more natural, safe, and sustainable (Wulandari, N. 2023).

One emerging alternative in herbal medicine is the utilization of date seeds. Often regarded as agricultural waste, date seeds contain various bioactive compounds, including flavonoids, phenolic compounds, and antioxidants, which may exert antihypertensive effects (Lestari, D. I. N. 2023). Date seed coffee, a beverage produced from roasted date seeds, is naturally caffeine-free and therefore may be safely consumed by individuals with hypertension who are sensitive to caffeine (Yuniar, L. 2022).

Previous studies have suggested that date seed coffee may contribute to blood pressure reduction; however, scientific evidence remains limited, and its application in clinical settings is still uncommon. Therefore, further investigation is necessary to evaluate the effectiveness of date seed coffee in reducing blood pressure among patients with hypertension. Given the limitations of long-term pharmacological therapy and concerns regarding its side effects, herbal-based interventions have become increasingly attractive as complementary treatment options (Handayani, F. 2023).

In addition to their potential antihypertensive effects through vasodilatory mechanisms, date seeds possess anti-inflammatory and antioxidant properties that may help protect blood vessels from oxidative damage (Saryono, & Sarmoko. 2021). Moreover, the development of date seed coffee as an innovative beverage may enhance public acceptance, particularly in communities where coffee consumption is deeply embedded in daily culture. Integrating date seed coffee as a complementary therapy may provide a more holistic approach to hypertension management, improve patient adherence to treatment, and reduce excessive dependence on pharmacological medications (Purnamayanti, D. 2021). Therefore, this study aimed to determine the effect of date seed coffee consumption on blood pressure among patients with hypertension at Kartini General Hospital, Kalirejo, Central Lampung.

MATERIALS AND METHOD

This study employed a quantitative approach using a quasi-experimental design. The research utilized a Pretest–Posttest Control Group Design, involving two groups of participants: an intervention group and a control group. Sample selection was conducted using a non-probability sampling technique, specifically purposive sampling, in which respondents were selected based on predetermined inclusion criteria established by the researchers.

A total of 20 respondents diagnosed with hypertension participated in this study. The intervention group received date seed coffee as the treatment, whereas the control group did not receive the intervention. The study was conducted from May to June 2025 and consisted of several stages, including preparation, implementation, data collection, analysis, and reporting. The intervention was administered for one week through a door-to-door approach. Participants in the intervention group consumed date seed coffee three times per week on alternate days. The study was conducted at Kartini General Hospital, Kalirejo, Central Lampung Regency, Indonesia.

Blood pressure measurements were obtained before (pretest) and after (posttest) the intervention period. Data were analyzed using the Paired Sample t-test to evaluate differences in blood pressure before and after the intervention within each group, as the data were normally distributed. In addition, the Independent Sample t-test was performed to compare blood pressure outcomes between the intervention and control groups. Statistical significance was determined at a p-value of less than 0.05.

RESULTS

Table 1 presents the pretest and posttest blood pressure measurements among hypertensive patients who received date seed coffee.

Table 1. Pretest and Posttest Blood Pressure in the Intervention Group

Blood Pressure	n	Min–Max (mmHg)	Mean ± SD (mmHg)
Pretest			
Systolic	10	140–165	153.30 ± 9.43
Diastolic	10	90–104	97.10 ± 4.80
Posttest			
Systolic	10	136–160	148.90 ± 9.04
Diastolic	10	87–98	92.90 ± 3.84

As shown in Table 1, the mean systolic blood pressure decreased from 153.30 mmHg before the intervention to 148.90 mmHg after the intervention. Similarly, the mean diastolic blood pressure decreased from 97.10 mmHg to 92.90 mmHg following the administration of date seed coffee.

Table 2. Pretest and Posttest Blood Pressure in the Control Group

Blood Pressure	n	Min–Max (mmHg)	Mean ± SD (mmHg)
Pretest			
Systolic	10	138–154	146.90 ± 5.30
Diastolic	10	89–97	93.50 ± 2.55
Posttest			
Systolic	10	133–149	141.70 ± 2.21
Diastolic	10	88–95	91.70 ± 5.12

Table 2 shows that the mean systolic blood pressure decreased from 146.90 mmHg to 141.70 mmHg, while the mean diastolic blood pressure decreased from 93.50 mmHg to 91.70 mmHg during the study period.

The paired sample t-test was performed to determine the effect of date seed coffee consumption on blood pressure among hypertensive patients.

Table 3. Comparison of Pretest and Posttest Blood Pressure in the Intervention Group

Variable	Pretest Mean ± SD	Posttest Mean ± SD	Mean Difference ± SD	p-value
Systolic Blood Pressure	153.30 ± 9.43	148.90 ± 9.04	4.40 ± 0.39	<0.001
Diastolic Blood Pressure	97.10 ± 4.80	92.90 ± 3.84	4.20 ± 0.95	<0.001

As presented in Table 3, there was a significant reduction in both systolic and diastolic blood pressure after the administration of date seed coffee ($p < 0.001$).

Table 4. Comparison of Pretest and Posttest Blood Pressure in the Control Group

Variable	Pretest Mean ± SD	Posttest Mean ± SD	Mean Difference ± SD	p-value
Systolic Blood Pressure	146.90 ± 5.30	141.70 ± 2.21	5.20 ± 3.09	<0.001
Diastolic Blood Pressure	93.50 ± 2.55	91.70 ± 5.12	1.80 ± 2.57	<0.001

Table 4 demonstrates statistically significant differences between pretest and posttest blood pressure measurements in the control group ($p < 0.001$). To evaluate the effectiveness of date seed coffee, posttest blood pressure measurements were compared between the intervention and control groups using the independent sample t-test.

Table 5. Comparison of Posttest Blood Pressure Between the Intervention and Control Groups

Variable	Intervention Group Mean ± SD	Control Group Mean ± SD	Mean Difference ± SD	p-value
Systolic Blood Pressure	148.90 ± 9.04	141.70 ± 5.12	7.20 ± 3.91	0.003
Diastolic Blood Pressure	92.90 ± 3.84	91.70 ± 2.21	1.20 ± 1.63	0.019

The independent sample t-test revealed significant differences in systolic blood pressure ($p = 0.003$) and diastolic blood pressure ($p = 0.019$) between the intervention and control groups. These findings indicate that date seed coffee consumption had a significant effect on reducing blood pressure among patients with hypertension.

DISCUSSION

Mean Pretest and Posttest Blood Pressure in the Intervention Group

The univariate analysis showed that the mean pretest systolic blood pressure in the intervention group was 153.30 mmHg (SD = 9.429), while the mean posttest systolic blood pressure decreased to 148.90 mmHg (SD = 9.036). The minimum and maximum pretest systolic blood pressure values were 140 mmHg and 165 mmHg, respectively, whereas the posttest values ranged from 136 mmHg to 160 mmHg. The mean pretest diastolic blood pressure was 97.10 mmHg (SD = 4.800), which decreased to 92.90 mmHg (SD = 3.843) after the intervention. The pretest diastolic blood pressure ranged from 90 mmHg to 104 mmHg, while the posttest values ranged from 87 mmHg to 98 mmHg.

Hypertension is recognized as a major risk factor for several serious diseases, including cerebrovascular disease, stroke, coronary artery disease, congestive heart failure, and renal disease, all of which contribute substantially to morbidity and mortality. Although antihypertensive medications have long been proven effective in controlling blood pressure, natural plant-based resources may also contribute to blood pressure management. One such approach involves the consumption of fruits, particularly those rich in water and essential nutrients, such as dates (Yuniar, L. 2022).

Foods rich in potassium, including dates, have been reported to effectively reduce both systolic and diastolic blood pressure due to their high potassium content. Calcium also plays an important role in blood pressure regulation, and inadequate calcium intake has been associated with an increased risk of prehypertension and hypertension. Given the high prevalence of hypertension, lifestyle modifications such as increasing fruit and vegetable consumption, reducing sodium and fat intake, and engaging in regular physical activity at least three times per week are strongly recommended (Syafriati, A., & Ana, P. 2024).

Hypertension can also be prevented through natural approaches, including the consumption of dates. In every 100 grams of dates, various essential nutrients are present, particularly potassium, which plays a critical role in blood pressure regulation. Potassium is the primary intracellular cation, and increased potassium intake promotes intracellular fluid retention, helping to reduce extracellular fluid volume and ultimately lower blood pressure.

Date seed coffee has emerged as a promising herbal beverage for blood pressure management among patients with hypertension. Date seeds contain antioxidants such as flavonoids and phenolic compounds that help protect body cells from oxidative stress caused by free radicals. These antioxidant properties contribute to maintaining vascular health and reducing the risk of cardiovascular diseases associated with hypertension. However, date seed coffee should be considered a complementary therapy rather than a substitute for prescribed antihypertensive medications.

Mean Pretest and Posttest Blood Pressure in the Control Group

The univariate analysis revealed that the mean pretest systolic blood pressure in the control group was 146.90 mmHg, while the mean posttest systolic blood pressure decreased to 141.70 mmHg. Similarly, the mean pretest diastolic blood pressure was 93.50 mmHg and decreased to 91.70 mmHg after the observation period. The use of antihypertensive medications has been proven effective in maintaining blood pressure stability and reducing the risk of complications. The success of hypertension treatment largely depends on patients' adherence to prescribed medications. However, long-term medication use may lead to treatment fatigue, causing some patients to become less compliant. Therefore, optimal treatment outcomes require active collaboration among patients, family members, and healthcare professionals (Fauziah, D. W., & Mulyani, E.2022).

Previous studies have demonstrated a significant association between medication adherence and blood pressure control among hypertensive patients. Statistical analysis using the Spearman test showed a significant relationship between antihypertensive medication adherence and blood pressure reduction ($p < 0.05$), indicating that consistent medication use plays an important role in hypertension management (Nurdin, F et al.2020).

Differences in Pretest and Posttest Blood Pressure in the Intervention Group

The paired t-test analysis demonstrated significant reductions in both systolic and diastolic blood pressure following the intervention. The mean reduction in systolic blood pressure was 4.40 mmHg ($p < 0.05$), while the mean reduction in diastolic blood pressure was 4.20 mmHg ($p < 0.05$). These findings indicate that date seed coffee consumption significantly reduced blood pressure among patients with hypertension. The observed reduction may be attributed to the beneficial bioactive compounds contained in date seeds. Participants consumed one cup of date seed coffee daily for three consecutive days, resulting in measurable decreases in both systolic and diastolic blood pressure.

These findings are consistent with those reported by Novita et al. (2020), who found significant reductions in both systolic and diastolic blood pressure following the consumption of date smoothies among hypertensive patients. Similar results were observed in a control group receiving bananas, suggesting that potassium- and magnesium-rich foods may contribute to blood pressure regulation. Uncontrolled elevated blood pressure over time may

progress to chronic hypertension, highlighting the importance of dietary interventions (Novita, R et al.2020).

Likewise, Alya et al. (2024) reported a significant reduction in systolic blood pressure among prehypertensive adults following the consumption of date-based ice cream. The average systolic blood pressure decreased from 124.2 mmHg before the intervention to 113.03 mmHg after the intervention, with a mean reduction of 11.1 mmHg. Statistical analysis confirmed a significant difference ($p = 0.001$). Dates (*Phoenix dactylifera* L.) are among the oldest cultivated plants in the world and are rich in potassium, an essential mineral involved in blood pressure regulation. Therefore, dates may serve as a natural dietary option for reducing hypertension risk and improving cardiovascular health.

Differences in Pretest and Posttest Blood Pressure in the Control Group

To assess blood pressure changes among participants who did not consume date seed coffee, paired t-test analysis was conducted. Significant differences were observed between participants who consumed date seed coffee and those who did not. The results indicated statistically significant differences in both systolic ($p = 0.003$) and diastolic blood pressure ($p = 0.019$). Although the control group did not receive date seed coffee, participants were provided with health education regarding blood pressure management and encouraged to continue taking antihypertensive medications. Variations in blood pressure among control participants may have been influenced by differences in adherence to treatment recommendations and lifestyle behaviors. Additionally, stress and other individual risk factors may have contributed to fluctuations in blood pressure (Alya, N et al.2024).

Dates contain natural sugars such as glucose and fructose, making them easily digestible and capable of rapidly restoring energy. In addition to providing carbohydrates, dates are rich in vitamins A, B1, B2, B12, and C, dietary fiber, calcium, potassium, copper, chlorine, iron, and various enzymes that support recovery and overall health. As a natural food source, dates are widely available throughout the year and are well accepted by the community because of their sweet taste and nutritional value. In this study, dates were consumed indirectly through date seed coffee, whereas other studies have administered dates in the form of juice or whole dried fruit (Syafriati, A., & Ana, P. 2024).

Effect of Date Seed Coffee on Blood Pressure Between the Intervention and Control Groups

The comparative analysis between the intervention and control groups revealed a mean difference in systolic blood pressure reduction of 7.20 mmHg (SD = 3.914) and a mean difference in diastolic blood pressure reduction of 1.20 mmHg (SD = 1.629). Independent sample t-test results demonstrated statistically significant differences in systolic blood pressure ($p = 0.003$) and diastolic blood pressure ($p = 0.019$) between the two groups. These findings indicate that date seed coffee had a significant effect on reducing blood pressure among hypertensive patients. Blood pressure reduction was greater in the intervention group than in the control group, suggesting the effectiveness of date seed coffee as a complementary therapy for hypertension management.

The results are supported by the findings of Fitriyati (2020), who reported significant differences in systolic blood pressure reduction between intervention and control groups receiving potassium- and magnesium-rich dietary interventions. Higher potassium and magnesium intake in the intervention group contributed to greater reductions in blood pressure. Similar mechanisms may explain the effectiveness of date seed coffee observed in the present study.Overall, the findings suggest that date seed coffee may serve as a promising complementary intervention for blood pressure control among patients with hypertension. However, larger studies with longer intervention periods are needed to confirm its effectiveness and investigate the underlying physiological mechanisms (Fitriyati, H., & Ruhyana, R. 2020).

CONCLUSION

The findings of this study demonstrate that the consumption of date seed coffee significantly reduced both systolic and diastolic blood pressure among patients with hypertension. Participants who received the intervention experienced a greater reduction in blood pressure compared to those in the control group, indicating the potential effectiveness of date seed coffee as a complementary approach to hypertension management. The antihypertensive effects observed may be associated with the antioxidant, phenolic, flavonoid, and mineral content of date seeds, which contribute to improved cardiovascular function and blood pressure regulation. Therefore, date seed coffee may serve as a promising non-pharmacological adjunct to conventional antihypertensive therapy.

Despite these encouraging results, the study was limited by its relatively small sample size and short intervention duration. Further research involving larger populations, longer follow-up periods, and more rigorous control of confounding variables is recommended to confirm the effectiveness and safety of date seed coffee in the long-term management of hypertension. In conclusion, date seed coffee has the potential to be utilized as a complementary dietary intervention for reducing blood pressure among individuals with hypertension and may contribute to broader strategies aimed at preventing hypertension-related complications.

REFERENCES

Pertiwi, Y., Prihanto, E. S. D., & Ambar, E. (2021). Karakteristik pasien hipertensi di poliklinik penyakit dalam Rumah Sakit Umum Daerah Dr. H. Chasan Boesoirie Ternate. *Kieraha Medical Journal, 1*(1), 1–7.

Yunafiah, N. (2021). *Hubungan tingkat stress dengan hipertensi pada usia produktif* (Skripsi). Universitas Aisyiyah Yogyakarta, Yogyakarta, Indonesia.

Wulandari, N. (2023). Formulasi kopi biji kurma sebagai minuman fungsional tanpa kafein. *Jurnal Teknologi Hasil Pertanian, 16*(1), 1–9.

Dinas Kesehatan Provinsi Lampung. (2022). *Profil kesehatan Provinsi Lampung*. Lampung, Indonesia: Dinas Kesehatan Provinsi Lampung.

RS Kartini. (2023). *Profil RS Kartini*. Lampung, Indonesia: RS Kartini.

Azrada, F. (2021). *Determinasi kejadian hipertensi pada penduduk usia produktif (15–64 tahun) di Indonesia tahun 2018* (Skripsi/Tesis). Indonesia.

Lestari, D. I. N. (2023). Efektivitas penggunaan diuretik dalam menurunkan tekanan darah pada lansia. *Jurnal Ilmu Kefarmasian Indonesia, 12*(1), 55–63.

Yuniar, L. (2022). Uji efektivitas antibakteri pada ekstrak biji kurma Ajwa (*Phoenix dactylifera* L.) terhadap bakteri *Staphylococcus aureus*. *Jurnal Pharmacopolium, 5*(2), 148–154.

Handayani, F. (2023). Efek calcium channel blocker dalam pengelolaan hipertensi pada pasien rawat jalan. *Jurnal Farmasi Klinik Indonesia, 6*(3), 200–208.

Saryono, & Sarmoko. (2021). *Aktivitas biji kurma sebagai antiinflamasi*. Yogyakarta, Indonesia: Deepublish.

Purnamayanti, D. (2021). Pengaruh lama penyangraian terhadap karakteristik organoleptik kopi non kafein dari biji kurma. *Jurnal Pendidikan Biologi, 10*(2), 55–61.

Syafriati, A., & Ana, P. (2024). Pengaruh pemberian jus kurma terhadap pasien dengan

tekanan darah tinggi di Puskesmas Pengarayaan. *Jurnal Kesehatan Tambusai, 5*(1), 2342–2350.

Fauziah, D. W., & Mulyani, E. (2022). Hubungan pengetahuan terhadap tingkat kepatuhan minum obat anti hipertensi. *Jurnal Pharm, 2*(2), 94–100.

Nurdin, F., Ibrahim, L., & Adhayanti, I. (2020). Tingkat pengetahuan dan kepatuhan minum obat pasien hipertensi di Puskesmas Lepanggang, Kabupaten Pinrang. *Jurnal Gizi Kerja dan Produktivitas*.

Novita, R. A., Mutiyani, M., Moviana, Y., & Isdiani, N. (2020). Peran smoothies kurma terhadap tekanan darah penderita hipertensi. *Jurnal Riset Kesehatan, 11*(2).

Alya, N., Isdiany, N., & Moviana, Y. (2024). Pengaruh pemberian es krim kurma terhadap tekanan darah kelompok dewasa penderita pre-hipertensi. *Jurnal Gizi dan Dietetik, 3*(2).

Fitriyati, H., & Ruhyana, R. (2020). *Pengaruh kurma kering terhadap tekanan darah penderita hipertensi di Dusun Semarangan Sidokarto Godean Sleman Yogyakarta* (Karya ilmiah/Skripsi). Yogyakarta, Indonesia.