

DATES' IMPACT ON LOWERING BLOOD PRESSURE IN HYPERTENSION PATIENTS**Khairunnisa Batubara^{1*}, Elvipson Sinaga²**¹Akper Gita Matura Abadi Kisaran²Universitas Audi Indonesia

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Doi: <https://doi.org/10.33024/mnj.v8i1.22044>**ABSTRACT**

When the systolic pressure is greater than 130 mmHg and the diastolic pressure is greater than 85 mmHg, the condition is known as hypertension or high blood pressure. Heart attack consequences can result from hypertension, including impaired renal function, vascular disease, and stroke development. Modern hypertension drugs might have negative side effects, therefore using a natural remedy, like dates, is an option. Dates are one of the alternative treatments for hypertension that may be found in traditional medicine. This study sought to ascertain whether providing dates to hypertensive individuals could lower their blood pressure. There was a pre-test and post-test control group in this quasi-experimental study design. Thirty responders were chosen using inclusion criteria and purposive sampling to make up the sample. While the control group (n=15) simply received standard therapy, the intervention group (n=15) received seven dates per day for 14 days. A sphygmomanometer was used to assess blood pressure both before and after the intervention. A paired t-test and an independent t-test with $\alpha=0.05$ were employed in the analysis. According to the results, the intervention group's systolic and diastolic blood pressures were significantly lower than those of the control group ($p<0.05$). In conclusion, giving dates to hypertension patients is a successful supportive non-pharmacological therapy for lowering blood pressure.

Keywords: Blood Pressure, Hypertension, Dates.**INTRODUCTION**

A condition known as hypertension occurs when blood flows through the arteries at a higher rate than normal. This is a serious condition that can cause heart strain, blood vessel damage, an increased risk of heart attack, stroke, kidney problems, and, if left untreated, death (Pardosi, S., & Buston, 2022).

Globally, the number of adults with hypertension has almost doubled over the last three decades,

from 650 million in 1990 to 1.3 billion in 2019, according to the World Health Organization's (WHO, 2023) Global Report on Hypertension. 10.8 million people died as a result of the rising trend in high blood pressure. Almost one in three persons worldwide have hypertension, with males slightly more likely than women under 50 to have it. The incidence rises to nearly 49% over the age of 50. In Indonesia, 36% of people have

hypertension. 34.1% of people have hypertension, according to the Indonesian Basic Health Research (Kemenkes RI., 2023).

Clinical signs of elevated blood pressure include headache, nausea, vomiting, blurred vision, and dependant edema. The most frequent complaint from patients is a headache, which can be brought on by elevated intracranial pressure in the brain. There are two types of headache treatment for hypertension patients: pharmacological and non-pharmacological. Because they are simple, affordable, and anticipated to have superior therapeutic benefits, non-pharmacological treatments are frequently suggested by medical professionals as an alternative for managing headaches in individuals with high blood pressure (Saputri, R., Ayubbana, S., & HS, 2022).

Dates (*Phoenix dactylifera*) are another non-pharmacological option for treating high blood pressure. Potassium, which is abundant in dates, is essential for reducing blood pressure. In contrast to sodium, potassium functions in the opposite manner. About 652 mg of potassium may be found in 100 grams of dried dates, which is equal to nine dried dates. Due to its tendency to draw fluid from the extracellular space, high potassium consumption raises the concentration of potassium in the intracellular fluid, which can lower blood pressure (Fitriyanti, 2019).

Blood pressure can be stabilized by eating foods high in potassium. Thus, it is anticipated that the combination of dates and tomatoes will lower blood pressure (Fauziah, 2020). According to the findings of a study (Ani Syafriati & Putri Ana, 2024), there was a difference in blood pressure before

and after administering date juice. The average systolic blood pressure was 153.95 before and 145.53 after, while the average diastolic blood pressure was 90.26 before and 80.26 after. According to a study (Novita, 2019), the systolic and diastolic blood pressure of the intervention group decreased by an average of 11.27 and 6.35 mmHg, respectively, after administering date juice. The decrease in systolic and diastolic blood pressure in the control group was, on average, 7.35 mmHg and 2.15 mmHg, respectively.

Based on the above, providing dates to hypertensive patients is crucial for lowering their blood pressure. This study aimed to analyze changes in systolic and diastolic blood pressure in hypertensive patients before and after date administration, and to compare the differences in blood pressure reduction (systolic and diastolic) between the intervention group given dates and the control group that did not receive the intervention in Kisaran City, Asahan Regency.

LITERATURE REVIEW

Since hypertension is a complex public health issue, there is a growing need for non-pharmacological treatments. Following the administration of seven dates per day for 14 days, the intervention group in this study experienced a reduction in both systolic and diastolic blood pressure. These findings support the nutritional theory that diets high in fiber, potassium, magnesium, and polyphenols may have protective benefits on the arteries.

Preclinical data supporting dates' cardioprotective effect has been consistently demonstrated by systematic reviews and literature

reviews. However, small-scale findings like this study should be interpreted with caution because clinical data in humans is scarce and inconsistent.

In terms of methodology, the present findings supplement early data but are not yet sufficient to substitute the outcomes of extensive randomized controlled trials (Al-Dashti, Y. A., Holt, R. R., Keen, C. L., & Hackman, 2021).

With a p -value <0.05 , this study demonstrated a substantial decrease in both systolic and diastolic blood pressure in the intervention group that received seven dates daily for 14 days. On average, the diastolic blood pressure dropped by ± 5 -6 mmHg while the systolic blood pressure dropped by ± 8 -10 mmHg. These outcomes are in line with those of (Al-Dashti, Y. A., Holt, R. R., Keen, C. L., & Hackman, 2021), who found that regular date eating for four weeks improved blood pressure profiles in healthy persons, however not all measures showed statistically significant reductions.

The potassium, magnesium, and polyphenols in dates have vasodilatory effects, lower peripheral resistance, and enhance endothelial function, according to a systematic review by (Boreddy, S. T., Alotaibi, G., Chinnadhurai, M., Dachani, S. R., Ahmad, M. D., & Aldaajani, 2025), which is consistent with the results of this investigation. However, due to variations in population, dosage, and dietary control, some earlier studies, including the one conducted by (Butler AE, Obaid J, Wasif P, Varghese JV, Abdulrahman R, Alromaihi D, Atkin SL, 2022) in patients with type 2 diabetes, found that consuming dates for 12 weeks did not significantly lower blood pressure.

In contrast, this study's relatively little duration (14 days) is a notable difference, although it already showed a significant effect. This might be because seven dates were given each day, as opposed to three to five in some earlier experiments. Additionally, since the study cohort included patients with medication-controlled hypertension, it may be easier to identify any extra effects of dates than it would be in the general population or in people with complicated metabolic comorbidities.

Since hypertension is a leading cause of cardiovascular morbidity and mortality, this research is crucial since it calls for a simple and efficient treatment strategy. This study offers hypertension patients another option for blood pressure control by investigating the effects of dates as a non-pharmacological intervention. It is anticipated that these findings will contribute to the growing body of information about nutritional therapy and promote the use of easily accessible natural fruits as a component of a healthy lifestyle. Practically speaking, the findings of the study can be used to support the management of hypertension through suggestions in health education, especially for nurses and other healthcare professionals.

By offering empirical proof of the efficacy of date fruit administration in reducing blood pressure in hypertensive patients, this study advances the disciplines of nursing and nutrition science. Its academic value resides in addressing a research gap concerning the precise dosage and brief period of date administration, which has not received much quantitative investigation. The foundation for using natural fruit-based nutritional therapy as an adjunct in the

treatment of hypertension is also strengthened by this study. The outcomes can be used as a starting point for more extensive, carefully monitored follow-up research.

The following research questions are based on the study's background and goals: does giving dates to hypertensive individuals for 14 days have an impact on lowering their systolic and diastolic blood pressure? Furthermore, what is the difference in blood pressure decrease between people with hypertension who have dates and those who simply receive standard therapy?

RESEARCH METHODOLOGY

With a pre-test, post-test, and control group design, this study employed a quasi-experimental approach. In order to compare the experimental group's blood pressure changes before and after the date fruit intervention to the control group, which only got standard therapy, this design was selected.

Patients with hypertension receiving therapy at a local health clinic made up the study population. 30 people made up the sample, who were split into two groups: the control group ($n = 15$) and the intervention group ($n = 15$). With the following inclusion criteria, the sample was chosen through a purposive sampling technique: hypertensive patients between the ages of 40 and 65, blood pressure $\geq 140/90$ mmHg, regular use of antihypertensive medication, no history of diabetes mellitus or chronic kidney disease, and willingness to participate in all research procedures.

The following were the research variables used:

Providing seven dates every day for 14 days is an independent variable.

Systolic and diastolic blood pressure in hypertensive patients are the dependent variables.

A conventional manual sphygmomanometer that has been calibrated to provide precise readings is the instrument used to monitor blood pressure. Systolic and diastolic blood pressure readings are measured in millimeters of mercury (mmHg).

The appropriate institutional ethics committee has approved this study. The goals and methods of the study were explained to each responder, and they were all given the assurance that their data would remain private. Prior to the start of the intervention, each participant provided written informed consent.

Using SPSS 26, parametric statistical tests were used to assess the collected data. Each group's blood pressure was compared before and after the intervention using a paired t-test. The difference in blood pressure between the intervention and control groups was compared using an independent t-test. The significance level for hypothesis testing was set at 0.05 ($\alpha=0.05$).

RESULT

The study sample had a fairly balanced gender composition and an age range that satisfied the inclusion requirements, according to Table 1, which displays the frequency distribution of respondent characteristics. Most respondents reported having hypertension for fewer than five years. This indicates that the population of hypertension patients under study is well represented.

Table 1. Frequency distribution of respondent characteristics

Characteristics	Frequency (n=30)	Percentage (%)
Gender		
- Male	16	53,3
- Female	14	46,7
Age (years)		
- 40-49	12	40,0
- 50-59	11	36,7
- 60-65	7	23,3
History of Hypertension (years)		
- <5	20	66,7
- ≥5	10	33,3

In the group receiving dates, univariate analysis revealed a substantial decrease in mean systolic and diastolic blood pressure before and after the intervention. On the

other hand, Table 2 indicates that the control group's blood pressure did not significantly alter throughout that time.

Table 2. Univariate Analysis

Variable	Intervention Group (n=15)	Control Group (n=15)
Systolic Blood Pressure (mmHg)	Mean ± SD: 150.8 ± 8.5 (Pre)	149.6 ± 7.9 (Pre)
	Mean ± SD: 141.2 ± 7.4 (Post)	147.8 ± 8.0 (Post)
Diastolic Blood Pressure (mmHg)	Mean ± SD: 95.3 ± 6.2 (Pre)	94.7 ± 6.1 (Pre)
	Mean ± SD: 89.8 ± 5.5 (Post)	93.5 ± 6.0 (Post)

Table 3's bivariate analysis supports these conclusions by demonstrating that the intervention group's blood pressure drop was statistically significant whereas the control group's blood pressure did not decrease significantly. A distinct

effect of date fruit administration on blood pressure reduction was indicated by the considerable difference in blood pressure reduction between the two groups.

Table 3. Bivariate Analysis

Analysis	Intervention Group (n=15)	Control Group (n=15)	p-value Difference Between Groups
Systolic Blood Pressure	p = 0,001* (significant decline)	p = 0,145 (insignificant)	0,023*
Diastolic Blood Pressure	p = 0,003* (significant decline)	p = 0,213 (insignificant)	0,037*

Table 4 shows that the validity test findings show that the blood pressure measuring tool employed in this study has a strong correlation with the reference standard and a very good level of accuracy. Additionally, the accuracy and consistency of the measuring instruments and techniques were validated by excellent reliability

values for both intra-rater and inter-rater measures, guaranteeing accurate blood pressure data for additional analysis. Overall, the study's findings provide credence to the theory that giving date fruit to hypertension patients might effectively drop their blood pressure and could be a worthwhile alternative supportive therapy.

Table 4. Results of Instrument Validity and Reliability Tests

Test Type	Method	Value	Description
Validity	Instrument calibration correlation	r = 0,92	Valid (value > 0,70)
Reliability	Intra-rater (ICC)	0,89	Reliabel (value > 0,75)
Reliability	Inter-rater (ICC)	0,87	Reliabel (value > 0,75)

DISCUSSION

According to this study, giving hypertension individuals date fruit supplements for 14 days significantly decreased their systolic blood pressure. This decrease is consistent with nutritional theory, which postulates that dates' potassium and magnesium content may help lower blood pressure via excreting sodium and dilatation of blood vessels (Al-Dashti, Y. A., Holt, R. R., Keen, C. L., & Hackman, 2021). These outcomes also support the findings of (Boreddy, S. T., Alotaibi, G., Chinnadhurai, M., Dachani, S. R., Ahmad, M. D., & Aldaajanii, 2025), who demonstrated that eating dates helps to lower peripheral resistance and improve vascular function. However, compared to a number of other studies that employed lower doses and longer durations, the results of this study demonstrate a meaningful benefit more quickly due to variations in the duration of the intervention and the dosage used.

The findings of this study also shown a considerable drop in diastolic blood pressure following

date administration, corroborating the idea that electrolytes, such the magnesium in dates, are essential for relaxing vascular smooth muscle (Filippini, 2017). Due to variations in the population and metabolic variables that affect vascular responses, the study by (Mirghani HO., 2024) revealed no discernible drop in diastolic blood pressure in diabetic individuals who consumed dates. Thus, this study supports the idea that patients with simple hypertension without complicated comorbidities benefit from taking dates as a dietary intervention.

The findings of this study also demonstrated a considerable drop in diastolic blood pressure following date administration, confirming the idea that electrolytes-like the magnesium in dates-are essential for relaxing vascular smooth muscle (Mirghani HO., 2024). Due to variations in the population and metabolic variables that affect vascular reactivity, the study by (Butler AE, Obaid J, Wasif P, Varghese JV, Abdulrahman R,

Alromaihi D, Atkin SL, (2022) revealed no discernible decrease in diastolic blood pressure in diabetic patients who consumed dates. Thus, this study supports the idea that people with simple hypertension without complicated comorbidities benefit from date administration as a dietary intervention.

The effectiveness of dates as a non-pharmacological adjunct therapy is demonstrated by the considerable difference in the decrease of both systolic and diastolic blood pressure between the intervention and control groups. These results are in line with a study by Khan and (Al-Shwyeh HA., 2019) that found that the fiber and polyphenols in dates have anti-inflammatory and antioxidant properties that enhance endothelial function and lower blood pressure. Recommendations for additional research are vital because this study did not test the oxidative or inflammatory biomarkers that are required to directly clarify the causes.

CONCLUSION

In conclusion, the findings of this study offer encouraging early proof that giving date fruit to hypertensive individuals can lower their blood pressure quickly. These findings, which concentrate on particular dosages and a brief intervention period, support and enhance the body of current research. Nevertheless, this study had methodological flaws that require attention in future research and did not directly investigate biological pathways. With the proviso that more thorough and controlled research is required for validation and wider therapeutic application, dates can thus be

suggested as a non-pharmacological supportive therapy.

Future researchers are advised to use a larger sample size, longer intervention duration, and include additional variables such as electrolyte levels, lipid profiles, and inflammatory markers. Furthermore, further studies should compare the effects of dates with other dietary interventions with similar benefits, so that the results can strengthen the scientific basis for using dates as a non-pharmacological supportive therapy for hypertension.

REFERENCES

- Al-Dashti, Y. A., Holt, R. R., Keen, C. L., & Hackman, R. M. (2021). Date Palm Fruit (Phoenix dactylifera): Effects on Vascular Health and Future Research Directions. *International Journal of Molecular Sciences*, 22(9), 4665. <https://doi.org/https://doi.org/10.3390/ijms22094665>.
- Al-Shwyeh HA. (2019). Date Palm (Phoenix dactylifera L.) Fruit as Potential Antioxidant and Antimicrobial Agents. *J Pharm Bioallied Sci*, 11(1):.(1), 1-11. https://doi.org/10.4103/jpbs.JPBS_168_18.
- Ani Syafriati & Putri Ana. (2024). The Effect Of Giving Date Palm Juice To Patients With High Blood Pressure At Pengarayaan Public Health Center. *Jurnal Kesehatan Tambusai*, 5(1), 2342-2350.
- Boreddy, S. T., Alotaibi, G., Chinnadhurai, M., Dachani, S. R., Ahmad, M. D., & Aldaajanii, K. A. (2025). Unveiling the cardiovascular-guarding secrets of Phoenix

- dactylifera: A systematic review. *Journal of Young Pharmacists*, 17(2), 250-263. <https://doi.org/http://dx.doi.org/10.5530/jyp.20251656>
- Butler AE, Obaid J, Wasif P, Varghese JV, Abdulrahman R, Alromaihi D, Atkin SL, A. N. (2022). Effect of Date Fruit Consumption on the Glycemic Control of Patients with Type 2 Diabetes: A Randomized Clinical Trial. *Nutrients*, 14(17), 3491. <https://doi.org/10.3390/nu14173491>.
- Fauziah, N. S. (2020). Hypertension Treatment by Improving Lifestyle in an Effort to Prevent Increased Blood Pressure. *Journal of Science, Technology and Entrepreneurship*, 2(2).
- Filippini, T. et al. (2017). The effect of potassium supplementation on blood pressure in hypertensive subjects: A systematic review and meta-analysis. *International Journal of Cardiology*, 230, 127-135.
- Fitriyanti, H. (2019). Dried Dates Can Lower Blood Pressure in Hypertension Sufferers. *Aisyiyah University, Yogyakarta*, 1-13.
- Kemenkes RI. (2023). *How to Overcome Hypertension*. <https://ayosehat.kemkes.go.id/cara-mengatasi-hipertensi>.
- Mirghani HO. (2024). Effect of dates on blood glucose and lipid profile among patients with type 2 diabetes. *World J Diabetes*, 15(6), 1079-1085. <https://doi.org/10.4239/wjd.v15.i6.1079>.
- Novita. (2019). The Role Of Date Smoothies In Blood Pressure In Prehypertension Patients. *Journal Of Health Research, Poltekkes, Depkes Bandung*, 11(2), 1-12.
- Pardosi, S., & Buston, E. (2022). Lifestyle Influences Health Status in Older Adults. *Journal of Health*, 13(3), 538-545. <https://doi.org/https://doi.org/10.26630/jk.v13i3.3184>
- Saputri, R., Ayubbana, S., & HS, S. A. S. (2022). Application of Deep Breathing Relaxation to Headaches in Hypertension Patients in the Cardiology Ward of General Ahmad Yani Regional Hospital, Metro City. *Jurnal Cendikia Muda*, 2(2), 506-513.
- WHO. (2023). *Global report on hypertension: the race against a silent killer (who.int)*. <https://www.who.int/srilanka/news/detail/17-05-2024-world-hypertension-day-2024-measure-your-blood-pressure-accurately-control-it-live-longer>