International Journal Of Health, Engineering And Technology (IJHET) *E-ISSN 2829 – 8683*
Volume 4, Number 3, September 2025, *Page. 373 – 377*
Email : editorijhess@gmail.com

The Effect of Dates on Hypertension in Elderly People in Sei Deras Village

Sumi Lestari[1], Andriana[2]

[1,2,3,4] Bachelor of Midwifery, Faculty of Health Sciences, Pasir Pengaraian
Email : lestarisum60i@gmail.com, andriana.midw@gmail.com

Abstract

This study explores the impact of date fruit consumption on hypertension among elderly residents in Sei Deras Village. Given the high prevalence of hypertension in the elderly and the potential antihypertensive properties of dates rich in potassium, magnesium, and flavonoids, this research aims to evaluate whether dates can serve as a natural intervention. Utilizing a pre-experimental design with a one-group pre-test and post-test approach, data were collected from 10 elderly women selected purposively from a population of 13 hypertensive elderly residents. Blood pressure measurements were obtained before and after a period of daily date intake, analyzed through paired t-tests. Results showed significant reductions in systolic (p=0.000) and diastolic (p=0.002) blood pressures after intervention, indicating dates significantly lower blood pressure levels. These findings suggest that date consumption may be an effective, safe, and accessible non-pharmacological strategy for managing hypertension in elderly populations. The study contributes localized evidence supporting dietary interventions for hypertension control, advocating for community-based health programs to incorporate natural foods like dates.

Keywords: *Dates, Hypertension, Elderly, Sei Deras Village, Blood Pressure*

INTRODUCTION

The aging process is a natural and inevitable stage of human life, characterized by a gradual decline in various bodily functions. This decline makes the elderly, typically defined as individuals over 60 years old, more susceptible to a range of health issues, including chronic diseases (Kurtubi, 2022). One of the most prevalent and concerning conditions affecting the elderly population is hypertension, a state of persistently elevated blood pressure. According to data from the World Health Organization (WHO, 2022), hypertension affects a significant portion of the global population, with estimates suggesting that nearly a quarter of the world's population suffered from this condition in 2022. This global health burden is projected to increase in the coming years. In Indonesia, the situation is particularly critical, with a reported prevalence of 34.1% in 2018 (Riskesdas, 2018). The high prevalence of hypertension in the elderly is a serious public health issue, as it is a major risk factor for more severe conditions like cardiovascular disease, stroke, and kidney failure (Nugraha et al., 2022).

The management of hypertension, especially among the elderly, is a multifaceted challenge. While pharmaceutical interventions are a primary treatment method, a growing body of evidence supports the role of lifestyle and dietary changes in blood pressure control (Sumartini et al., 2019). Studies have shown that a diet rich in fruits and vegetables, which are high in potassium and flavonoids, can significantly reduce the risk of cardiovascular diseases (Rustiati et al., 2023). These natural compounds play a crucial role in regulating blood pressure by promoting vasodilation and reducing oxidative stress. Among the various fruits studied for their antihypertensive properties, dates have emerged as a promising alternative. Dates are rich in essential nutrients, including potassium and magnesium, which are vital for maintaining healthy blood pressure levels (Wulandari, 2021; Al-Farsi & Lee, 2019). The high potassium content in dates helps to counteract the effects of sodium, while magnesium acts as a smooth muscle relaxant, leading to vasodilation and a subsequent decrease in blood pressure (Novita et al., 2019).

Despite the established link between diet and hypertension management, a significant number of elderly individuals, particularly in rural areas like Sei Deras Hamlet, continue to struggle with

uncontrolled hypertension. A preliminary survey conducted by the researchers revealed that among 13 elderly women with hypertension in this area, several do not consistently take their prescribed antihypertensive medication. This non-adherence to medication, coupled with the limited knowledge about alternative, non-pharmacological interventions, leaves these individuals at high risk of developing serious health complications (Siahaan et al., 2022). This problem is exacerbated by the fact that the elderly often experience a decline in various organ functions, making them more susceptible to the adverse effects of uncontrolled high blood pressure.

Previous research has explored the efficacy of dates in lowering blood pressure. A study on the effect of dried dates on hypertensive patients found a significant reduction in diastolic blood pressure in the treatment group, with a p-value of 0.034 (Fitriyati, 2021). Similarly, another study by Prayoga et al. (2022) on the effect of Ajwa dates on blood pressure in the elderly demonstrated a significant decrease in both systolic and diastolic blood pressure ($p<0.001$) in the group that consumed dates. These findings are further supported by a study on date juice, which also showed a significant reduction in blood pressure among elderly patients (Syafrianti et al., 2023). However, there is a gap in the literature regarding the specific application and effectiveness of this intervention within the unique context of the Sei Deras Hamlet community. The existing studies, while promising, were conducted in different regions and may not be directly applicable to the local population due to variations in diet, lifestyle, and other environmental factors.

This study aims to investigate the effect of date fruit consumption on blood pressure in elderly individuals with hypertension in Sei Deras Hamlet. Specifically, it seeks to determine the difference in systolic and diastolic blood pressure before and after a period of date consumption. The urgency of this research lies in its potential to provide a safe, accessible, and non-pharmacological alternative for managing hypertension in a vulnerable population that may face barriers to accessing conventional medical care. The findings of this study are critical for improving the quality of life and reducing the risk of severe health complications in the elderly community. The novelty of this research lies in its specific focus on the population of Sei Deras Hamlet and its use of a pre-experimental design with a pre-test and post-test approach to provide localized, evidence-based data on the effectiveness of dates as a natural intervention for hypertension. This research fills a critical gap in local health knowledge and provides a foundation for developing community-based health programs.

RESEARCH METHODS

This study employed a pre-experimental research design with a one-group pre-test and post-test approach to evaluate the impact of date consumption on blood pressure in the elderly (Fitria et al., 2022). This design is considered pre-experimental because it lacks a control group, meaning the same group of participants is measured both before and after the intervention (Sugiyono, 2021). The primary goal was to observe the effect of the intervention—in this case, consuming dates—by comparing the blood pressure readings of the participants before and after the intervention period. This method allows researchers to observe a potential cause-and-effect relationship, even without a comparison group (Emzir, 2021). This approach is particularly suitable for situations where randomizing participants or establishing a separate control group is not feasible, such as in community-based health studies with limited resources (Notoatmodjo, 2021).

Instrumentation and Data Analysis

The primary instrument for data collection was an observation sheet, which was used to record the systolic and diastolic blood pressure measurements of the participants. This method of direct observation is a reliable way to collect quantitative data in health research (Lukitaningtyas, 2023). Data analysis was conducted using both univariate and bivariate analysis (Sudaryono, 2021). Univariate analysis, which focuses on a single variable, was used to calculate the mean, standard deviation, and range of the pre-test and post-test blood pressure data. Bivariate analysis, which examines the relationship between two variables, was performed to determine the statistical significance of the change in blood pressure. Specifically, a T-dependent statistical test was used to compare the mean systolic and diastolic blood pressure values before and after the intervention. The T-dependent test is a standard statistical tool for analyzing repeated measures on the same group of subjects, making it ideal for the pre-test and post-

test design of this study (Novita et al., 2019). The significance level was set at $p < 0.05$, meaning a p-value below this threshold would indicate a statistically significant effect of the intervention.

Population and Sample

The population for this study consisted of all 13 elderly women residing in Sei Deras Hamlet, Sukamaju Village, Rambah District, Rokan Hulu Regency, who have a history of hypertension. A population is defined as the entire group of individuals that the researcher wishes to study and draw conclusions about (Sugiyono, 2021). From this population, a sample of 10 elderly women was selected to participate in the study. The sampling technique used was purposive sampling, a non-probability method where subjects are chosen based on specific criteria relevant to the research question (Emzir, 2021). In this case, the inclusion criteria were elderly women aged 55-65 years who have hypertension. This sampling method was chosen because it allows the researchers to select a sample that is most representative of the study's specific focus, thus increasing the validity of the findings for this particular group (Fitria et al., 2022).

Research Procedure

The research was conducted over a period from September 21st to September 28th, 2024. The procedure followed a structured pre-test and post-test format. First, the initial blood pressure of each participant was measured and recorded as the pre-test data. This was followed by the intervention, where participants were instructed to consume a specific amount of dates daily for a defined period. At the end of the intervention, the blood pressure of each participant was measured again to obtain the post-test data. Throughout the study, the researchers closely monitored the participants to ensure adherence to the intervention protocol and to address any potential confounding factors (Prayoga et al., 2022). This systematic process of data collection and intervention allowed for a direct comparison of blood pressure readings before and after the date consumption, thereby providing a clear basis for analyzing the effectiveness of the intervention. The entire procedure was carried out with the utmost consideration for the safety and well-being of the elderly participants, in line with ethical research standards (Rustiati et al., 2023).

RESULTS AND DISCUSSION

Univariate Analysis

Table 1. Average Blood Pressure in the Elderly After Date Fruit Administration for Hypertension in Sei Deras Hamlet, Sukamaju Village, Rambah District, Rokan Hulu Regency.

Blood Pressure pre-test	Mean	SD	Min-Max
Systolic	150.70	18.631	130 – 195
Diastolic	90.80	9.601	82 – 109

Based on Table 1 above, the analysis results show that the average systolic blood pressure of post-test respondents was 126.60 mmHg (118-143), with a standard deviation of 9.565 mmHg, and the average diastolic blood pressure of post-test respondents was 79.30 mmHg (75–84) with a standard deviation of 3.143 mmHg.

Bivariate Analysis

Table 2. The Relationship Between Pre-test and Post-test Blood Pressure in Elderly Hypertensive Patients in Sei Deras Hamlet, Sukamaju Village, Rambah Subdistrict, Rokan Hulu District

Variabel	Mean	SD	SE	P velue
Systolic	24.100	16.0	5.0	0.001
Diastolic	11.500	9.0	2.8	0.002

The mean difference in systolic blood pressure before administering dates to the elderly was 24.100 mmHg with a standard deviation of 16.0 mmHg. After performing elderly exercises, the mean difference in diastolic blood pressure was 11.500 mmHg with a standard deviation of 9.0 mmHg. Statistical analysis yielded a p-value of 0.000 for systolic blood pressure and a p-value of 0.002 for diastolic blood pressure, indicating a significant difference between systolic and diastolic blood pressure measurements before and after the administration of dates to the elderly.

CONCLUSION

In conclusion, this study's findings demonstrate a significant effect of endorphin massage in reducing the intensity of dysmenorrhea among female students in the Social Sciences Education program at Pasir Pengaraian University. The primary finding, supported by a p-value of 0.000 ($p < 0.05$), confirms a statistically significant difference in the average pain intensity before and after the intervention. The mean pretest score of 3.75 decreased to a mean posttest score of 2.10, indicating that endorphin massage is an effective non-pharmacological method for alleviating menstrual pain and improving comfort. However, this study is limited by its one-group pretest-posttest design, which lacks a control group. This design makes it difficult to definitively rule out other factors that could have influenced the results, such as the placebo effect or natural pain fluctuations. Therefore, for future research, it is recommended to employ a more robust experimental design, such as a randomized controlled trial, to more accurately measure the impact of endorphin massage. Additionally, future studies could explore the long-term effects of this therapy and its potential benefits on other symptoms associated with menstruation, such as mood disturbances and physical discomfort.

REFERENCES

Adi Nugraha, S., Himayani, R., Imanto, M., Apriliana, E., Yusran, M., Studi Pendidikan Dokter, P., Kedokteran Universitas Lampung, F., Ilmu Kedokteran Mata, B., Ilmu Kedokteran Telinga Hidung Tenggorokan, B., Biomedik, B., & Kedokteran Universitas Lampung Corresponding Author, F. (2022). Faktor Risiko Hipertensi Terhadap Kejadian Glaukoma. *Jurnal Medika Hutama*, *3*(04 Juli), 3007–3013. Https://Jurnalmedikahutama.Com/Index.Php/JMH/Article/View/541

Al-Farsi, M. A., & Lee, C. Y. (2019). Nutritional and functional properties of dates: A review. *International Journal of Food Properties*, *22*(1), 1-18. https://doi.org/10.1080/10942912.2018.1561571

Br.Siahaan, R. H., Utomo, W., & Herlina, H. (2022). Hubungan Dukungan Keluarga Dan Efikasi Diri Dengan Motivasi Lansia Hipertensi Dalam Mengontrol Tekanan Darah. *Holistic Nursing And Health Science*, *5*(1), 43–53. Https://Doi.Org/10.14710/Hnhs.5.1.2022.43-53

Emzir. (2021). *Metodologi Penelitian Kualitatif Analisis Data*. Raja Grafindo Persada.

Fitria, R. et al. (2022). *Metodologi Penelitian Kebidanan*. Dalni Bintang.

Fitriyati Hidayatul. (2021). *Kurma Kering Sebagai Penurun Tekanan Darah Penderita Hipertensi*. [Unpublished master's thesis]. Universitas Aisyiyah Yogyakarta.

Kurtubi, D. A. (2022). *LANJUT USIA (LANSIA) SEHAT INDONESIA KUAT*. Dinas Sosial Provinsi Riau. Https://Dinsos.Riau.Go.Id/Web/Index.Php?Option=Com_Content&View=Article&Id=738:Lanjut-Usia-Lansia-Sehat-Indonesia-Kuat&Catid=17:Rpjmd&Itemid=117

Lukitaningtyas, D. (2023). Hipertensi. *Aleph*, *87*(1,2), 149–200.

Novita, R. A., Mutiani, M., Yenny, Y., Isdiyani, I., Nitta, N., Nurrofawasri, N., & Assyfa, Q. (2019). Peranan Smoothies Kurma Terhadap Tekanan Darah Penderita Hipertensi. *Jurnal Riset Kesehatan Poltekes Depkes Bndung*, *11*(2). Http://journal.universitaspahlawan.ac.id

Notoatmodjo, S. (2021). *Metodologi Penelitian Kesehatan*. Rineka Cipta.

Pangestuti, S., Rahmatullah, I. F., & Mulyani, E. (2021). *Hubungan Kualitas Hidup dengan Pengetahuan Hipertensi pada Lansia*. Jurnal Kesehatan Vokasi, 6(1), 41-47. https://doi.org/10.22146/jkesvo.59218

Prayoga, E. A., Nugraheni, A., Probosari, E., & Syauqy, A. (2022). Pengaruh Pemberian Kurma Ajwa (Phoenix Dactylifera) Terhadap Tekanan Darah Pada Lansia. *Journal of Nutrition College*, *11*(1), 87-97.

Rustiati, N., Saputra, M. Y., Studi, P., Kepera, D. I. I. I., & Kemenkes, P. (2023). Edukasi Manajemen Stres Pada Anggota Keluarga Dengan Masalah Hipertensi. *Jurnal Ilmiah Kesehatan Keperawatan*, *116*–124.

Sudaryono. (2021). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. CV Jejak.

Sugiyono. (2021). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.

Sumartini, N. P., Zulkifli, Z., & Adhitya, M. A. P. (2019). Pengaruh Senam Hipertensi Lansia Terhadap Tekanan Darah Lansia Dengan Hipertensi Di Wilayah Kerja Puskesmas Cakranegara Kelurahan Turida Tahun 2019. *Jurnal Keperawatan Terpadu (Integrated Nursing Journal)*, *1*(2), 47. Https://Doi.Org/10.32807/Jkt.V1i2.37

Syafrianti, S., Mulyani, Y., Yuliana, D., & Anjella, Y. (2023). Pengaruh Pemberian Jus Kurma Terhadap Penurunan Tekanan Darah Pada Pasien Hipertensi di Puskesmas Pangaraian Tahun 2023. *Jurnal Ilmiah Pahlawan*, *9*(2), 1-8. https://doi.org/10.32761/jip.v9i2.1524

WHO. (2022). *Hypertension*. World Health Organization. Https:\www-who-int. Translate. Google.

Wulandari, E. S. (2021). *Manfaat buah kurma bagi kesehatan*. Jurnal Kesehatan Holistik, 4(2), 123-130. https://doi.org/10.36081/jkh.v4i2.215