



The Effect of Bay Leaf Decoction on Blood Decrease Uric Acid Levels in the Elderly

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Abstract : Gout is a type of inflammatory joint disease that occurs due to the accumulation of uric acid crystals. It usually occurs in several joints, such as the toes, ankles, knees, and big toes. Gout is also commonly called gout. This study aims to determine the Effect of Bay Leaf Decoction on Reducing Uric Acid in the Elderly at the Binjai Estate Health Center in 2024. The design of this study uses a descriptive correlation research method (*correlation study*). The population in this study were all elderly people as many as 26 respondents, a total sampling of 26 samples. The variables in the study were the independent variable, namely boiled bay leaves and the dependent variable, uric acid levels in the elderly. The research instrument used a questionnaire and *chi-square test*. The results of the study show that regular elderly drink stew leaf greetings , grade sour tendon down as many as 16 people (84.2%) and elderly minority drink stew leaf regards regular , level sour tendon No down as many as 3 respondents (15.8%) while majority elderly who do not regular drink stew leaf greetings , grade sour tendon down as many as 1 respondent (14.2%) and a minority elderly who do not regular drink leaf greetings , grade sour tendon No down as many as 6 respondents (85.8%). The chi-square test shows that mark significant *p-Value* = 0.002 < α (0.05), so H_1 is accepted. Conclusion This research is There is connection influence stew leaf regards to decline level sour veins in the elderly at the Community Health Center Binjai Estate.

Keywords : Elderly, Gout, Bay Leaf Decoction

1. INTRODUCTION

According to Law Number 13 of 1998, elderly people are those who have reached the age of 60 years and over (Wibowo, 2018), while Government Regulation of the Republic of Indonesia Number 43 of 2004 states that elderly people are those who have reached the age of 60 years and over (Putri, 2019).

Aging is not a disease, but a process that gradually results in cumulative changes, is a process of decreasing the body's resistance to stimuli from within and outside the body. Furthermore, according to WHO, elderly people are classified based on chronological biological age into four groups, namely, middle age (middle / young elderly) aged between 45-59 years, elderly (elderly) aged between 60-74 years, old age (old) aged between 75-90 years (Wibowo, 2018).

Elderly or old age is a phase that has been arranged by God, which characterized by increased weakness, increased susceptibility to various diseases, changing environments, loss of dexterity and reduced mobility and physiological changes. Physical health in the elderly decreases, especially in relation to energy, activity, work capacity, pain and dependence on medical care. This makes the elderly less than optimal in carrying out their lives (Murwani, 2020)

Elderly people are susceptible to disease. Because the decreasing physical strength and endurance cause the working mechanism of the body's organs to be disrupted so that they are susceptible to disease. The biggest change that occurs in old age is the loss of body mass, including bones, muscles, and organ mass, while fat mass increases. Increased fat mass can trigger the risk of cardiovascular disease, diabetes mellitus, hypertension, and other degenerative diseases including gout. At that age, the urokinase enzyme that oxidizes uric acid into allantoin so that it is easily excreted and decreases as a person gets older. If the formation of this enzyme is disrupted, blood uric acid levels will increase. One of the causes that affects uric acid levels is excessive exercise or excessive physical activity. Physical activity such as body movements caused by skeletal muscle work and increases energy and energy expenditure (Arjani, 2018).

According to the Indonesian Ministry of Health (2022), gout is a type of inflammatory joint disease that occurs due to the accumulation of uric acid crystals. Usually occurs in several joints, such as the toes, ankles, knees, and big toes. Gout is also usually called gout . Uric acid is a substance resulting from metabolism or purine from the body. Metabolism itself is actually formed in the body naturally. Under normal conditions, uric acid can dissolve in the blood, but if it exceeds it, the blood plasma will become very saturated and this condition is called hyperuricemia or gout (Dungga, 2022).

According to the World Health Organization (WHO) in 2020, 34.2% of the world suffer from gout and it increases every year. This increase also occurs in developing countries, one of which is Indonesia. This is supported by data from Riskesdes in 2020, the prevalence of gout based on the diagnosis of health workers in Indonesia is 11.9% and based on the diagnosis or symptoms 24.7% when viewed from age characteristics, the prevalence is high at age ≥ 75 years (54.8%). There are also more female sufferers (8.46%) compared to men (6.13%) (Riskesdes, 2020).

The prevalence of gout in Indonesia is increasing. According to Riskesdas in 2018, the prevalence of gout based on the diagnosis of health workers in Indonesia was 11.9% and based on the diagnosis or symptoms 24.7% when viewed from age characteristics, high prevalence at age ≥ 75 years (54.8%). There are also more female sufferers (8.46%) compared to men (6.13%) (Republic of Indonesia, KK, 2018). The incidence of gout becomes the same between men and women after the age of 60 years, in addition there are many risk factors for gout that are strongly associated with the incidence of gout in women compared to men. Family history of gout, renal insufficiency, history of comorbidities, and history of previous diseases based on

research conducted by Festy et al, 38% of postmenopausal women have a high purine diet (Febriyanti, T., 2020).

Uric acid can affect joints in several points of the body so that joints can experience swelling. Hyperuricemia which is defined as an increase in uric acid levels of more than 7.0 ml / dl (for men) and 6.ml / dl (for women) is a metabolic disorder at the root of the problem of gout (Widyanto et.al., 2020).

Symptoms of gout can last for a relatively short time. Several factors can trigger gout. Consuming too many drinks with high sugar, alcoholic beverages, certain medications can and a family history of the disease can be one of the factors of gout. One of the medicines that can treat gout is by boiling bay leaves (Widyanto et al., 2022)

According to (Sahensolar et al (2023) flavonoids found in bay leaves have the ability to inhibit the enzyme xanthine oxidase, which results in a decrease in uric acid levels in the blood. Flavonoids have biological and pharmacological activities, such as antioxidants, antivirals, antibacterials and antimutagenic effects. Flavonoids are able to inhibit several enzymes, namely xanthine oxidase, cyclooxygenase, lipoxygenase, and phosphoinositide 3-kinase. Xanthine oxidase is oxidative in the damage to living tissue and can cause hyperuricemia. Flavonoids modify the oxidation of hypoxanthine and xanthine to uric acid.

Another study conducted by Widiyono and Aryani, A (2020) entitled The Effect of Bay Leaf Decoction on Reducing Uric Acid Levels in the Elderly. From the results of the study, there was an effect of uric acid before and after giving bay leaf decoction as indicated by the paired test value before giving bay leaf decoction with an average value of 7.26 and after giving bay leaf decoction with an average value of 4.75 with a p-value of $0.001 < \alpha. (0.05)$. The properties contained in bay leaves have several compounds such as essential oils, tannins, and flavonoids which are abundant in the leaves. The content in bay leaves can reduce uric acid levels by inhibiting the work of the xanthine oxidase enzyme so that it can inhibit the formation of uric acid.

The significant decrease between uric acid levels before and after giving boiled bay leaf water is a side effect that cannot be ignored in addition to other side effects that may occur in giving boiled bay leaf water to reduce uric acid levels. Therefore, the use of bay leaves as a traditional medicine for gout cannot be fully used independently and must be accompanied by health workers to prevent the possibility of these side effects. Further research is needed to determine the side effects and other benefits of this bay leaf. In addition, it is necessary to clarify how to make boiled bay leaves or the SOP for making bay leaves and how many times it must be standardized (Widiyono and Aryani, 2020).

Of the several herbal plants used by the community to treat gout, the author is interested in researching the herbal plant bay leaves in reducing gout in the elderly. Because bay leaves are one of the plants that contain tannins, flavonoids, saponins, triterpenes, polyphenols, alkaloids, essential oils, vitamin C, vitamin A, thiamine, riboflavin, niacin, vitamin B6, and vitamin B12 which function in reducing the formation of uric acid through purines (Aryani et al., 2020).

Based on the initial survey conducted by the research on June 14, 2024 at the Binjai Estate Health Center, 26 elderly people with complaints of gout, 20 of whom were found. After being given health education to the elderly about the benefits of bay leaf decoction for reducing uric acid levels. The 20 elderly people with gout were willing to use bay leaf decoction to reduce uric acid levels in the elderly.

Based on the data above, the researcher is interested in conducting a study entitled "The Effect of Bay Leaf Decoction on Reducing Uric Acid Levels at the Binjai Estate Health Center in 2024."

2. LITERATURE REVIEW

According to (Fauziah, et al., 2022) increased uric acid levels in the body can be caused by several factors such as hereditary factors that cause purine synthesis disorders and disrupted uric acid disposal factors. Other factors that influence the increase in uric acid levels include a lifestyle that likes to consume foods high in purines. Bay leaves can be used to overcome increased uric acid levels. Oral use of bay leaf extract inhibits the formation of uric acid by reducing the amount of hypoxanthine and xanthine in the body (Fauziah, et al., 2022).

Risk factors that affect uric acid levels are classified into 2 factors, namely uncontrollable risk factors and controllable risk factors. Uncontrollable factors are age, gender and genetics. Controllable factors are excessive alcohol consumption, BMI, excessive purine intake and drugs (Syarifah, 2018).

Genetic factors can affect uric acid levels in men, especially men who are homozygous (alleles consisting of the same gene pair). If men have high uric acid levels before the age of 25, then an enzyme examination is needed that can cause high uric acid production (Jaliana, 2018)

3. METHODS

Research design is a strategy in research to identify problems before final planning of data collection and identify the structure in which the research is carried out (Nursalam, 2020). This research design uses a descriptive correlation research method (*correlation study*), namely a research method for the relationship between two or more variables in a situation. The research location is at the Binjai Estate Health Center in 2024, because after the researcher conducted observations, the population was sufficient and the distance from the location to the researcher was affordable. In this study, the research time needed to collect data and conduct research starts from July-December 2024. The population in this study was all elderly people as many as 26 respondents at the Binjai Estate Health Center. The sampling technique used was a total sampling method of 26 samples.

4. RESULTS

Based on the results of the study on "The Effect of Bay Leaf Decoction on Reducing Uric Acid Levels in the Elderly at the Binjai Estate Health Center in 2024", with a total of 26 elderly people.

Univariate Analysis

Univariate analysis aims to explain and describe the characteristics of each variable studied. With univariate analysis, the distribution of the elderly can be seen with the influence of decreasing uric acid levels before and after consuming boiled bay leaves.

Table 1. Frequency Distribution and Percentage of Bay Leaf Decoction on Reducing Uric Acid Levels in the Elderly at the Health Center Binjai Estate 2024

No	Bay Leaf Decoction	f	%
1	Regular	19	73.1
2	Irregular	7	26.9
Amount		26	100

Based on table 1 can seen of the 26 respondents studied at the Community Health Center Binjai Estate 2024 majority elderly boil leaf regards in a way regular as many as 19 respondents (73.1%) while minority elderly with boil leaf regards in a way No regular as many as 7 respondents (26.9%).

Table 2. Frequency and Percentage Distribution to Analyze Uric Acid Levels in the Elderly at the Binjai Estate Health Center in 2024

NO	Uric Acid Levels	Amount	
		f	%
1.	Down	17	65.4
2.	Not Down	9	34.6
Amount		26	100

Based on table 2 can seen of the 26 respondents studied at the Community Health Center Binjai Estate 2024 majority successful seniors down level sour tendon as many as 17 respondents (65.4%) are in the minority elderly who do not down level sour tendon as many as 9 respondents (34.6%).

Bivariate Analysis

Table 3 Distribution Frequency and Percentage Influence Bay Leaf Decoction Against Decrease in Uric Acid Levels

No	Bay Leaf Decoction	Uric Acid Levels				Amount	df	Sig (2-tailed)	
		Down		Not Down					
		f	%	F	%				
1	Regular	16	84.2%	3	15.8%	19	100%	1	.002
2	Irregular	1	14.2%	6	85.8%	7	100%		
Total		17	-	9	-	26	100%		

Based on table 3 can seen by the elderly at the health center Binjai Estate 2024 majority regular elderly drink stew leaf greetings , grade sour tendon down as many as 16 people (84.2%) and elderly minority drink stew leaf regards regular , level sour tendon No down as many as 3 respondents (15.8%) while majority elderly who do not regular drink stew leaf greetings , grade sour tendon down as many as 1 respondent (14.2%) and a minority elderly who do not regular drink leaf greetings , grade sour tendon No down as many as 6 respondents (85.8%). *P-Value* = 0.002.

Based on chi square test results influence stew leaf regards to decline level sour veins in the elderly at the Community Health Center Binjai Estate in 2024 with degrees significance (a)

= 0.05 and $df = 1$ is obtained results calculation namely sig(2-tailed) $0.002 < (a) = 0.005$, then H_0 is rejected and H_a is accepted . The conclusion is There is influence stew leaf regards to decline level sour veins in the elderly at the Community Health Center Binjai Estate 2024 .

5. DISCUSSION

Influence Bay Leaf Decoction Against Decreased Uric Acid Levels in the Elderly

Based on table 1 above obtained results based on variable stew leaf Greetings to the elderly at the Community Health Center Binjai Estate in 2024 can known that of 26 elderly people with majority elderly with boil leaf regards in a way regular as much as 73.1% while minority elderly with boil leaf regards in a way No regular as much as 26.9%.

According to the results of research conducted by (Aryani et al. , 2020) the results of the analysis using parametric statistical tests with paired samplet-test with paired test shows $p\text{-value} = 0.001 < \alpha (0.05$ for 7 days of administration of boiled bay leaves, uric acid before 7.26 mg / dL and after administration of boiled bay leaves became 4.75 mg / dL Respondents experienced a decrease in uric acid levels of 2.51 mg / dL . This decrease was influenced by cooperative respondents and was carried out according to procedures with regular frequency and the diet they followed during the study.

Uric Acid Levels in the Elderly in Response to Giving Boiled Leaves Regards

Based on table 2 above, the results obtained based on the variable of uric acid levels in the elderly at the Binjai Estate Health Center in 2024, it can be seen that out of 26 elderly people at the Health Center Binjai Estate 2024 majority successful seniors down level sour tendon as much as 65.4% minority elderly who do not down level sour tendon as much as 34.6%.

Gout is a joint disease that occurs due to high levels of uric acid in the blood. The accumulation of uric acid will form crystals in the joints that can trigger pain and swelling in various joints of the body. Consuming alcohol can also increase the risk of gout because it causes the excretion of uric acid through urine to decrease, so that uric acid remains in the bloodstream and accumulates in the joints and forms around the joints (Syahadat and Vera, 2020).

According to the article by Helvi, et al (2018) the increase in uric acid levels in the blood can be caused by several factors such as impaired uric acid excretion, age factors, and can also be caused by dietary factors, namely by consuming foods that contain high levels of purines such as peanuts, spinach, beans, cassava leaves, meat, cauliflower and kale.

Influence Bay Leaf Decoction Against Decrease in Uric Acid Levels in the Elderly at the Community Health Center Binjai Estate 2024

Based on table 3 results influence stew leaf regards To Decrease in Uric Acid Levels in the Elderly at the Health Center Binjai Estate 2024 calculation namely Sig(2-tailed) $0.002 < (a) = 0.005$, then H_0 is rejected and H_a is accepted . The conclusion is There is influence stew leaf regards to decline level sour veins in the elderly at the Community Health Center Binjai Estate in 2024.

Bay leaves contain tannins, flavonoids, saponins, triterpenes , polyphenols , alkaloids , and essential oils . Another advantage is its ability to precipitate albumin and inhibit enzyme activity. The flavonoid content in bay leaves also has antioxidant activity that can inhibit the activity of the xanthine enzyme. oxidase so that the formation of uric acid is inhibited (Utami, 2018). Tannin is a complex organic substance , consisting of phenolic compounds that are difficult to separate and difficult to crystallize, precipitate proteins from their solutions and combine with proteins. The content of flavonoids and tannins has an effect on working to reduce uric acid levels by inhibiting the work of the xanthine enzyme oxidase , if the work of the xanthine enzyme The oxidase is inhibited so that the formation of purine into uric acid decreases (Desmiati , 2018)

The flavonoid content in bay leaves can bind the enzyme compound Xanthine Oxidase so that it can reduce the formation of Xanthine which can form uric acid. The flavonoid structure which has double bonds can easily bind the Xanthine enzyme compound Oxidase so that in the metabolism of uric acid formation, Xanthine production can be controlled (Madyastuti & Dwi, 2018).

The decrease in uric acid levels by utilizing bay leaves is influenced by the flavonoid content contained in bay leaves, with the use of bay leaves can also inhibit the work of the hypoxanthine enzyme , so that the formation of uric acid can be inhibited. In addition, bay leaves are also effective as a diuretic that helps excrete uric acid through urine (Dewani & Maulidin, 2020)

The results of this study are in line with showing a relationship between diet and uric acid levels with a significance value or p- Value of 0.023. Therefore, it can be concluded that foods that contain high levels of purine will be converted into uric acid, this is because the body provides 85% of purine compounds for daily needs and purine is found in food, especially shrimp, seafood , squid , crab, shellfish, and many other foods that contain high levels of purine can result directly from the formation of excess uric acid or even due to a decrease in the

excretion of uric acid which is too much with the purine content in food can increase the production of uric acid itself (Elvie Febriani Dunga 2022)

6. CONCLUSION

After conducting research on the Effect of Boiled Bay Leaves on Reducing Uric Acid Levels in the Elderly at the Binjai Estate Health Center in the period 2024, it can be simulated as follows:

1. Uric acid in medical language is known as Gout is a medical condition where there is a disruption of uric acid metabolism in the body. As a result, there is an increase in uric acid levels in the body. Excessive uric acid crystals will accumulate in body tissues and cause inflammation (inflammation) in the joints (arthritis). Gout disease is characterized by aches and pains, especially in the joints. The pain is caused by inflammation of the joints.
2. From the research results, it was found that the distribution of the frequency of boiled leaves Greetings to the elderly at the Binjai Estate Health Center in 2024, the majority elderly with boil leaf regards in a way regular as many as 19 respondents (73.1%) while minority elderly with boil leaf regards in a way No regular as many as 7 respondents (26.9%).
3. From the research results, it was found that the distribution of the frequency of decreasing uric acid levels in the elderly at the Binjai Estate Health Center in 2024 with the majority successful seniors down level sour tendon as many as 17 respondents (65.4%) are in the minority elderly who do not down level sour tendon as many as 9 respondents (34.6%).
4. From the research results it was found that the frequency distribution can be seen by the majority of elderly regular elderly drink stew leaf greetings , grade sour tendon down as much as 84.2% and the elderly minority drink stew leaf regards regular , level sour tendon No down as much as 15.8% while majority elderly who do not regular drink stew leaf greetings , grade sour tendon down as much as 14.2% and a minority elderly who do not regular drink leaf greetings , grade sour tendon No down as much as 85.8%. *P-Value* = 0.002. Based on chi square test results influence stew leaf regards to decline level sour veins in the elderly at the Community Health Center Binjai Estate in 2024 with degrees significance (α) = 0.05 and $df = 1$ is obtained results calculation namely sig(2-tailed) $0.002 < (\alpha) = 0.005$, then H_0 is rejected and H_a is accepted . The conclusion is There is influence stew leaf regards to decline level sour veins in the elderly at the Community Health Center Binjai Estate 2024

SUGGESTION

For Respondents

Respondents are advised to consume boiled bay leaves regularly and consistently according to the dosage specified in the study. It is also important to ensure the correct way of serving, such as boiling bay leaves for the right time, so that its properties are maintained. In this way, respondents can maximize the benefits obtained from this herbal treatment.

It is also recommended that respondents have their uric acid levels checked regularly to monitor changes that occur after consuming bay leaf decoction. In addition, maintaining a balanced diet by avoiding foods high in purines, such as red meat and alcoholic foods and drinks, is very important. The combination of consuming decoction and a healthy diet is expected to accelerate the decrease in uric acid levels.

For Binjai Estate Health Center

For Puskesmas, it is recommended to organize education and counseling programs for the community, especially for the elderly, regarding the benefits of bay leaf decoction in managing uric acid levels. By providing clear and evidence-based information, the community can better understand natural ways to improve their health and reduce gout symptoms.

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