

THE EFFECT OF BOILING PAPAYA LEAVES ON JOINT PAIN COMPLAINTS IN OLDER PEOPLE WITH RHEUMATOID ARTHRITIS AT THE PEKKABATA PUBLIC HEALTHCARE

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ABSTRACT

Rheumatoid arthritis is an inflammatory illness characterized by the deterioration of joints and synovial lining, particularly in the hands, feet, and knees. There are both pharmacological and non-pharmacological treatments for rheumatoid arthritis. Decoction of papaya leaves is one of the non-pharmaceutical remedies for rheumatoid arthritis that reduces joint pain complaints. This study aimed to assess the effect of papaya leaf decoction on joint pain complaints in senior patients with rheumatoid arthritis at Pekkabata Health Center. This study utilized a quasi-experiment with a one-group Pre-post-test design technique. Purposive sampling was employed to collect data from a total of 10 individuals. Using the Paired T-Test statistic, the data were evaluated. The findings of the Paired T-Test with a p-value of 0.000 indicate that papaya leaf decoction affects joint pain complaints in older patients with rheumatoid arthritis at the Pekkabata Public Health Center. This study suggests that a papaya leaf decoction can be used as an alternative, non-pharmaceutical treatment for rheumatoid arthritis to help lessen joint pain complaints.

Keywords: elderly; joint pain complaints; papaya leaf decoction; rheumatoid arthritis

INTRODUCTION

The elderly are people who have reached the latter part of their lives, including those aged 60 years and above. This elderly population will experience a process called aging. The natural process of aging means that a person has gone through three phases of life: childhood, adulthood, and old age. These three phases are physiologically and psychologically different (Umaht et al., 2021). According to the World Health Organization, the world's elderly population was around 7.6 billion in 2019 and could increase to 9.9 billion by 2050. In 2015, the number of older people aged 60 and above was around 15%, increasing to 22% in 2018 (Canada, 2018). Globally, by 2020, the number of older people could increase, and the number of older people aged 60 years and above could surpass the number of children aged five years (WHO, 2018). (WHO, 2018). The aging process is the gradual loss of tissue capacity to repair or replace itself and maintain normal function, so it cannot withstand the lifestyle, and decreased use of the musculoskeletal system is the main cause of muscle strength loss. (Santosa et al., 2019). Rheumatoid arthritis is one of the most common musculoskeletal system disorders. In the world, rheumatoid arthritis increases in old age, especially in women. The Mayo Facility study study conducted in the United States showed that between 1995-2018, women with rheumatoid arthritis pain reached 54,000 - 100,000 people, while men were only 29,000 out of 100,000 people, Situmorang (2017) (Andri, 2020). (Andri, 2020).

Rheumatoid arthritis is a chronic, autoimmune, systemic, progressive inflammatory disease of unknown origin that causes progressive deterioration in the musculoskeletal system, affecting small and large joints and resulting in pain, deformity, and possibly irreversible bone and cartilage degradation. According to the WHO, 335 million people worldwide have rheumatoid arthritis. Based on 2018 National Basic Health Research statistics, 67.4% of elderly people with rheumatoid arthritis are independent, 28.4% are mildly dependent, 1.5% are moderately dependent, 1.1% are

highly dependent, and 1.5% are severely dependent. Rheumatoid arthritis is one of the most common forms of rheumatism in the elderly (Daryanti, 2020). As one of the countries with a relatively high level of age development, the Indonesian government and society have begun to pay attention to issues concerning the elderly along with increasing life expectancy. The growth in life expectancy and the large number of elderly people in Indonesia is a natural result of successful development. In Indonesia, the population is projected to reach 18 million in 2021, 41 million in 2035, and more than 80 million in 2050. The prevalence of joint disease in Indonesia is 11.9% based on health worker examination and 24.7% based on findings or symptoms. Based on the health worker study, Bali had the highest prevalence (19.3%), followed by Aceh (18.3%), West Java (17.5%), and Papua (15.3%). Based on health worker or symptom studies, East Nusa Tenggara had the highest frequency of joint disease at 33.1%, followed by West Java (32.1%) and Bali (30%). About Jambi (8.6%) (Indonesian Ministry of Health, 2013). To avoid paralysis in Rheumatoid Arthritis patients, effective therapy is needed, especially in terms of prevention. Paralysis develops due to chronic pain stiffness, which creates stiffness in the joints so that blood vessels are not smooth and the motor nervous system is affected, therefore requiring both pharmacological and non-pharmacological pain treatment in rheumatoid arthritis patients. (Fatmawati & Ariyanto, 2021).

Based on data from the Pekkabata Health Center, the number of people with rheumatoid arthritis in 2020 was 23 people. In 2021, rheumatoid arthritis patients experienced an increase in the number of 123 people. And in 2022 there were 44 rheumatoid arthritis patients until May. Treatment of rheumatoid arthritis is generally pharmacologic and non-pharmacologic. Medications are the most widely used pain management method. However, in this study, the researcher tried to provide non-pharmacological treatment because pharmacological therapy has several side effects, including respiratory depression, nausea and vomiting, and constipation. In addition, pharmaceutical drugs can cause tolerance, dependence, and addiction. These circumstances combat the disease and restore the harm caused (Santosa et al., 2019). Many patients mistake the pain of rheumatoid arthritis for normal arthritis and seek treatment too late. The onset of discomfort often leads to the inability to move, thus interfering with daily tasks and decreasing productivity. In addition, pain is enough to disturb patients in their daily lives, so it can interfere with patient comfort (Andri et al., 2020).

Pain is a very unpleasant and very personal experience that cannot be shared. Pain can consume a person's entire mind and change their life. Despite this, pain is a difficult idea for patients to express. Pain is graded from simple discomfort to low intensity. Moderate pain is pain that evokes an emotional response. Severe pain, also known as intense suffering. No pain = if the pain intensity scale is 0, mild pain = if the pain intensity scale is 1-3, moderate pain = if the pain intensity scale is 4-6, severe pain = if the pain intensity scale is 7-9, very severe = if the numerical pain intensity scale is 10. (Anwar & Barus, 2020). Both pharmacological and non-pharmacological approaches can be used to treat rheumatism-related pain. With pharmacology, the use of analgesic drugs is feasible, but the aging elderly face pharmacodynamics, pharmacokinetics, and drug metabolism in the elderly body, so the use of analgesic drugs is very dangerous for the elderly. In addition, long-term consequences may include gastrointestinal bleeding, stomach ulcers, perforation, and kidney problems (Andri et al., 2020). The most common symptom felt by people with rheumatoid arthritis is joint pain. Apart from pharmacological treatment or taking pain relievers, people with rheumatic joint pain who have symptoms of joint pain can try various traditional medicines or non-

pharmacological treatments, such as using surrounding plants that can be used as medicine. Some plants, such as papaya, which are usually used for their fruit, it turns out that their leaves can be used as medicine, which has properties that can relieve joint pain.

Papaya (*Carica papaya* L.) leaves contain carpaine alkaloids, carpain, pseudocarpain, L-ascorbic acid, vitamin E, choline, and carposid. Benzyl isothiocyanate is a glucosinolate found in papaya leaves. In addition, papaya leaves contain potassium, calcium, magnesium, copper, iron, zinc, and manganese. Moreover, papaya leaves contain the chemical alkaloids carpain, carikaxanthin, violaxanthin, papain, saponins, flavonoids, and tannins. (Jannah & Masiah, 2020). Papaya leaves can have an analgesic effect because in ancient times they were used to relieve pain and have analgesic activity contained in papaya leaf content is carpain alkaloid. (Prasditya & Rejeki, 2018).. Various internal and external inflammatory diseases, including skin rashes, muscle pain, and joint discomfort, can be treated with papaya leaves. Several minerals and components in papaya leaves, including papain compounds, flavonoids, and vitamin E, can reduce inflammation (Laily, 2021). The boiled leaves are processed into chopped leaves by slicing them to reduce their size. Boiling chopped leaves facilitates drug extraction, producing compounds with greater analgesic concentrations. The leaves are boiled in water until the water boils, after which the pulp is filtered, and the water is heated before pouring into a glass. The boiled water uses 6 grams of papaya leaves (1 papaya leaf) plus one glass of water (250 mL) plus a little salt to cover the bitter taste of the papaya leaf herbal drink. Drink once daily for four consecutive days (Rahmah et al., 2020).

Findings Rahmah et al. (2020), entitled "The Effect of Giving Papaya Leaves (*Carica Pepaya* L) to Rheumatic Arthritis Pain," prove that herbal drinks made from papaya leaves help relieve pain in test patients. The difference in the level of pain scale reduction in the group treated with chopped papaya leaf decoction was 3.2%. The study by Maulani et al. (2018), "The Effect of Papaya Leaf Decoction on Reducing Pain Intensity," proved that before receiving papaya leaf decoction treatment, 15 participants reported mild discomfort in 3 (20%) and moderate pain in 12 (80%) cases. Before receiving papaya leaf decoction treatment, 14 (93.3%) of the 15 respondents experienced mild discomfort, while 1 (6.7%) had moderate pain. Candra and Santi (2017) researched the "Effectiveness of Papaya Leaf Extract (*Carica Papaya* L) as Anti-Inflammatory." Since ancient times, *Carica papaya* L leaves have been used. In acute inflammation research, an ethanolic extract of *Carica papaya* L leaves given orally to rats with inflammation produced by carrageenan claw is anti-inflammatory. From the findings, Prasditya & Rejeki (2018), titled "Activity Test of Papaya Leaf (*Carica Papaya* L) as Analgesic," One of the enzymes contained in papaya leaves, papain, has anti-inflammatory and analgesic properties.

From the description above, with the increasing number of people with rheumatoid arthritis in the Pekkabata Health Center working area, prospective reviewers are encouraged to carry out a study entitled "The Effect of Papaya Leaf Decoction on Joint Pain Complaints in Elderly Patients with Rheumatic Arthritis in the Pekkabata Health Center Working Area." Applying this method is an alternative action that is easy to take at home because the raw materials are easily available. There is also a lack of interest among the elderly and their families in going to health services to get medicine. For this reason, this study offers non-pharmacological treatment.

METHOD

The type of research used is Quasi Experiment with One-Group Pre and Post-Test Design approach. The analytic descriptive method is a study conducted to assess one group. (Pamungkas & Usman, 2017). This research was conducted at the Pekkabata Health Center Work Area, Polewali Mandar Regency, from July 18 to July 24, 2023. The population in this study was elderly people with rheumatoid arthritis in the Pekkabata Health Center Working Area, and there were as many as 44 people. The sampling technique used was a non-probability sampling method, namely purposive sampling, where the sample in this study amounted to 10 people. Researchers obtained data on patients with rheumatoid arthritis at the Pekkabata Health Center. The researcher obtained the respondents' identities by conducting a home visit to ask for their consent to participate in the research activities. Then, the researcher informed the purpose and purpose of the research activities to be carried out. After obtaining consent, the researcher gave questionnaires to respondents and provided counseling on how to make papaya leaf decoction. The data from the study were then processed in Univariate and Bivariate using a computer program. The bivariate analysis used in this study was the paired t-test. Paired T-test is a parametric statistical test to determine whether there is a difference in the mean of 2 interconnected groups. Researchers will compare data before and after treatment (Pamungkas, 2016).

RESULTS AND DISCUSSION

Table 1.
Distribution of Respondents

Respondent Characteristics	Distribution of Respondents	
	f	%
Age		
65-75 years	6	60,0
76-85 years	4	40,0
Total	10	100,0
Gender		
Male	3	30,0
Female	7	70,0
Education		
SD	9	90,0
SMP	1	10,0
HIGH SCHOOL	-	-
PT	-	-
Jobs		
Not working	-	-
Farmers	2	20,0
IRT	7	70,0
Self-employed	1	10,0
PNS	-	-

Table 1 shows the characteristics of respondents based on age. Out of 10 respondents, six were elderly people aged 65-75 (60%), and four were people aged 76-85 (40%). Characteristics of respondents based on gender showed that the gender of male respondents was three respondents (30%) while the female gender was seven respondents (70%). Characteristics of respondents based on education, education graduated from elementary school as many as nine respondents (90%), and graduated from junior high school as many as one respondent (10%). Characteristics of respondents based on occupation, respondents who work as self-employed one person (10%), farmers as many as two respondents (20%), and housewives as many as seven respondents (70%).

Table 2.
Distribution of Respondents Based on Joint Pain Complaints Before Giving Papaya Leaf Decoction

NoRes	Pain Scale	
	f	%
1	6	11,7
2	4	7,8
3	5	9,8
4	6	11,7
5	5	9,8
6	4	7,8
7	5	9,8
8	6	11,7
9	7	13,7
10	3	5,8
Mean		5,10
Min		3
Max		7

Table 2 shows that the average value of joint pain complaints before giving papaya leaf decoction is 5.10, the minimum value before giving papaya leaf decoction is three while the maximum value before giving papaya leaf decoction is seven.

Table 3.
Distribution of Respondents Based on Complaints of Joint Pain After Giving Decoction Papaya Leaf

NoRes	Pain Scale	
	f	%
1	3	12
2	2	8
3	3	12
4	3	12
5	3	12
6	2	8
7	2	8
8	2	8
9	4	16
10	1	4
Mean		2,50
Min		1
Max		4

Table 3 shows that the average value of joint pain complaints after giving papaya leaf decoction is 2.50 with a minimum value of one and the maximum value after giving papaya leaf decoction is Four.

Bivariate analysis was conducted to determine the effect of papaya leaf decoction on joint pain complaints in elderly people with rheumatoid arthritis in the Pekkabata Health Center Working Area. The statistical test used was the *Paired Sample T Test*.

Table 4
The Effect of Papaya Leaf Decoction on Joint Pain Complaints in Elderly Patients with Rheumatoid Arthritis in the Pekkabata Health Center Working Area

Complaints of Muscle Pain	Mean	Median	Min	Max	<i>p</i>
Pre-Test	5,10	5,00	3	7	0.000
Post-Test	2,50	2,50	1	4	

Table 4 proves that the average complaint of joint pain before giving papaya leaf decoction is 5.10 and the average complaint of joint pain after giving papaya leaf decoction is 2.50, with the median value before giving papaya leaf decoction 5.00 and after giving papaya leaf decoction 2.50, the minimum value before giving papaya leaf decoction three, the minimum value after giving papaya leaf decoction one, and the maximum value before giving papaya leaf decoction seven, the maximum value after giving papaya leaf four. The results of the Paired Samples T-Test analysis obtained a value of 0.000 and an alpha value of 0.05, where *p* is smaller than alpha. This shows that papaya leaf decoction has an effect on joint pain complaints in elderly people with rheumatoid arthritis in the Pekkabata Health Center service area.

Based on the results of data analysis and adjusted to the research objectives and research conceptual framework, the discussion is presented as follows:

Analysis of Joint Pain Complaints Before Giving Papaya Leaf Decoction

The researcher made a home visit to ask the respondents' permission to take part in the study. This survey involved ten people. To identify respondents, researchers asked their permission not to use pharmacological treatment (e.g., eating analgesic drugs) during this study. Research conducted for four days showed that for pain complaints before the papaya leaf decoction intervention, one respondent was included in the severe pain criteria, eight respondents were classified as moderate pain criteria, and one respondent was classified as mild pain category. Through the average results of 5.10, the minimum value before giving papaya leaf decoction was three, while the maximum value before giving papaya leaf decoction was seven. Arthritis, often known as rheumatism, is a disease that damages the joints and surrounding tissues. It is sometimes viewed as a mild condition as it does not result in death. However, if left untreated, rheumatism can develop abnormalities in the function of body components, including bumps, stiff joints, difficulty walking, and even permanent impairment. The resulting discomfort may be very unpleasant and limit routine activities. (Kartini et al., 2019).

The most common symptom felt by people with rheumatoid joint pain is joint pain. Pain is defined differently between individuals, depending on perception. However, there is one aspect of pain perception that is universal. Pain is defined as an unpleasant experience, both sensory and emotional, due to tissue damage or other circumstances, which causes a person to feel tormented, suffer, and ultimately interfere with daily, psychological, and other activities. (Mussardo, 2019).

The findings of this study are in line with research by Liana in 2018 entitled Comparison of the Efficacy of Papaya Leaf Decoction (*Carica Papaya*) and Turmeric Acid (*Curcuma Domestica Val-Tamarindus Indica*) Against Joint Pain, where the average pain score before giving papaya leaf decoction is 5.40 ± 0.73 through a minimum score of four and a maximum score of six while the average pain score after giving papaya leaf decoction is 3.60 ± 0.91 with a minimum score of two and a maximum score of five.

Analysis of Joint Pain Complaints After Administration of Papaya Leaf Decoction

The results of the study, which lasted four days, showed that there were changes in complaints of joint pain. After the intervention of papaya leaf decoction, ten respondents fell into the mild pain category, and no more respondents fell into the criteria for moderate pain and severe pain. With an average result of 2.50, the minimum value after giving papaya leaf decoction is 1, while the maximum value before giving papaya leaf decoction is four. Many patients mistake the joint discomfort associated with rheumatoid arthritis with regular arthritis, so they delay treatment. The onset of discomfort often leads to the inability to move, thus interfering with daily tasks and lowering productivity. In addition, pain moderately inhibits the patient's ability to perform daily tasks, thereby reducing patient comfort (Andri et al., 2020). Some plants such as papaya, which are commonly used for fruit, it turns out that the leaves can be used as a medicine that has properties that can relieve joint pain. *Carica papaya* L. leaves contain alkaloids carpainin, carpain, pseudocarpain, L-ascorbic acid, vitamin E, choline, and carposid. Benzyl isothiocyanate is a glucosinolate found in papaya leaves. In addition, papaya leaves contain potassium, calcium, magnesium, copper, iron, zinc, and manganese. In addition, papaya leaves contain alkaloids carpain, carikaxanthin, violaxanthin, papain, saponins, flavonoids, and tannins. (Jannah & Masiah, 2020). Various internal and external inflammatory diseases, including skin rashes, muscle pain, and joint discomfort, can be treated with papaya leaves. Several minerals and components in papaya leaves, including papain compounds, flavonoids, and vitamin E, can reduce inflammation (Laily, 2021). This study's findings align with the research of Rahmah et al. (2020), who found that giving papaya leaves individually at home can reduce the scale of joint pain. The difference in the degree of decrease in pain scale in the group treated with papaya leaf decoction is 3.2.

Analysis of the Effect of Papaya Leaf Decoction on Joint Pain Complaints

Treatment of rheumatoid arthritis is generally pharmacologic and non-pharmacologic. The most common management is pharmacological treatment. In this study, however, the researchers sought to provide non-pharmacological treatment as pharmacological therapy has several side effects, including respiratory depression, nausea and vomiting, and constipation. In addition, pharmaceutical drugs can create tolerance, dependence, and addiction. These circumstances lead to infection and repairing the damage suffered (Santosa et al., 2019). This study is in line with the literature that in addition to pharmacological treatment or taking pain relievers, people with rheumatoid joint pain who have symptoms of joint pain can try various traditional medicines and non-pharmacological treatments, such as using surrounding plants that can be used as medicine. Some plants, such as papaya, which are commonly used as fruit, turn out that the leaves can be used as medicine, which has the efficacy to relieve joint pain. (Andri et al., 2020).

The results of the study show that complaints of joint pain before and after the papaya leaf decoction intervention have changed. The average complaint of joint pain before the papaya leaf decoction intervention was 5.10 through the results of $p = 0.000$, while for joint pain complaints after the papaya leaf decoction intervention was 2.50 through the results of $p = 0.000$ through a difference of 2.60. The results of the analysis through the use of Paired Sample T Test testing obtained the result $p = 0.000$, and the result $\alpha = 0.005$, which $p < \alpha$ means that there is an effect of papaya leaf decoction on joint pain complaints for elderly people with rheumatoid arthritis in the Pekkabata Health Center work area. Based on research results from Prasditya & Rejeki (2018) entitled "Activity Test of Papaya Leaf Content (*Carica Papaya* L) as an Analgesic," the activity of giving papaya leaf herbal drinks can make the pain scale decrease. The average difference in the

decrease in the papaya leaf decoction treatment group was 3.2.

This is also confirmed by the findings of Maulani et al. (2018), who found that before receiving papaya leaf decoction treatment, three out of 15 respondents (20%) experienced mild pain, while 12 out of 15 respondents (80%) also experienced moderate pain. After receiving papaya leaf decoction treatment, 14 out of 15 respondents (93.3%) experienced mild pain, while one respondent (6.7%) experienced moderate pain. Based on the Wilcoxon March Pair Test results, if the p-value of 0.001 is smaller than 0.05, then H_0 is rejected, and H_a is accepted, indicating that the administration of ripe papaya leaves reduces pain severity. According to Rhosdal (2017), empathic nursing care can help reduce pain. Several options exist to relieve client discomfort, one of which is to provide ripe papaya leaves, which is an optional and free treatment. This non-pharmacological activity is beneficial as a pain reliever, especially in patients with rheumatoid arthritis. (Santosa et al., 2019). Through the acquisition of studies and studies carried out for reviewers, it is found that the papain and flavonoid compounds in papaya leaves act as analgesics and anti-inflammatories, reducing joint pain complaints in elderly people with rheumatoid arthritis. The average joint pain complaints before being given papaya leaf decoction are in the moderate pain category, and after giving papaya leaf decoction, pain complaints have decreased to mild pain.

CONCLUSION

Based on the results of research conducted on the Effect of Papaya Leaf Decoction on Joint Pain Complaints in Elderly Patients with Rheumatoid Arthritis in the Pekkabata Health Center Working Area in 2022, the following conclusions can be drawn: Complaints of joint pain in elderly people with rheumatoid arthritis before giving papaya leaf decoction obtained an average of 5.10, median 5.00, minimum value before giving papaya leaf decoction three, while the maximum value before giving papaya leaf decoction seven. Complaints of joint pain in elderly people with rheumatoid arthritis after giving papaya leaf decoction obtained an average of 2.50, with a median of 2.50, the minimum value after giving papaya leaf decoction one, while the maximum value after giving papaya leaf decoction four. Paired t-test test results paired with $p = 0.000 < 0.005$ prove a significant difference in the variable of joint pain complaints before and after giving papaya leaf decoction. This means papaya leaf decoction affects joint pain complaints in elderly people with rheumatoid arthritis in the Pekkabata Health Center work area.

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