

# The Effect of Warm Red Ginger Compress Therapy on the Decrease in Rheumatoid Arthritis Pain in the Elderly at the Social Institution Tresna Werdha Pagar Dewa Bengkulu

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## Abstract

**Background:** This study aims to determine the effect of compress therapy using warm red ginger to reduce the scale of rheumatoid arthritis pain in the elderly.

**Study Design:** This study used a one-group pretest-posttest pre-experimental research design, with a total sample of 15 respondents.

**Results:** Based on the results of the bivariate analysis using the Dependent T test, it was found that there was an effect between compresses using warm red ginger with a value ( $p$  value = 0,000) on the decrease in the scale of rheumatoid arthritis pain in the elderly at the Tresna Werdha Pagar Dewa Bengkulu Home. The provision of non-pharmacological management in the form of compressing warm red ginger will provide a heat effect so that it can eliminate inflammation and acidity in the fluid content in the joints, besides that there is also gingerol content in the area around the ginger rhizome which has an analgesic effect with techniques to create vasodilation conditions in vessels. blood resulting in decreased pain. Therefore, giving this therapy is very beneficial and helps the elderly who suffer from rheumatoid arthritis pain.

**Conclusion** The role of the orphanage will be very helpful in informing and facilitating the elderly in reducing the scale of rheumatoid arthritis pain through non-pharmacological management in the form of warm red ginger compress therapy with the hope of improving the health status of the elderly at the social institution Tresna Werdha Pagar Dewa Bengkulu Home.

**Keywords:** Red Ginger, Pain, Rheumatoid Arthritis

## Introduction

Rheumatoid arthritis is a chronic, systemic inflammation that can attack various tissues, but the most important thing is the joint which produces nonsuppurative proliferative synovitis which can damage the cartilage of the joints and, if allowed to become disabled<sup>1</sup>.

According to the World Health Organization, the prevalence of rheumatoid arthritis (RA) in the world is vulnerable between 0.3 to 1%, with a greater incidence of attacking the female sex. Data from Riskesdas in 2018 results from interviews with  $\geq 15$  years of age, the average prevalence of joint disease / rheumatism is 7.3% of the Indonesian population. The province with the

highest prevalence rate is occupied by Aceh province, which is around 13.3%, while Bengkulu Province is the province with the second highest prevalence after Aceh province<sup>2</sup>. Rheumatoid arthritis is also the second most common chronic disease after hypertension affecting the elderly with a proportion of 48% of rheumatoid arthritis<sup>3</sup>.

Rheumatoid arthritis is characterized by damage and proliferation of the synovial membrane, resulting in damage to bones, joints and deformities that occur in the elderly. Elderly is a condition where there is an increase in age along with a decrease in physiological function, so that the elderly often have a higher risk of experiencing pain. This is also caused by several pathological things such as decreased function of the musculoskeletal system due to changes in the composition of the fluid solution

in the cartilage will overload the joints to work even harder which can trigger pain<sup>4</sup>. Rheumatoid arthritis also produces constitutional symptoms such as low-grade fever, where these manifestations are caused by the same mediators as joint inflammation. This disease also appears at the same time as it begins with stiffness and pain in the joints, especially in the morning<sup>1</sup>.

Pain is a complaint of people with rheumatoid arthritis to health workers when doing medication or treatment. There are several pain management that can be done both pharmacologically and non-pharmacologically. To reduce the pain of rheumatoid arthritis through non-pharmacological management, it is carried out through warm compresses, ergonomic exercises, warm ginger compresses. One of the pain management is compresses using warm red ginger, while the advantage compared to other non-pharmacological therapies is that red ginger contains the enzyme cyclo-oxygenase which can reduce the feeling of inflammation in people with rheumatoid arthritis, besides also having a burning effect, and contains a functioning analgesic. to reduce pain<sup>5</sup>.

A survey conducted by researchers at the Tresna Werdha Pagar Dewa Social Institution, Bengkulu on April 4, 2019, there were 67 respondents with the incidence of rheumatoid arthritis 20 people. Then the results of the interviews conducted show that so far, there has never been any non-pharmacological treatment to reduce pain, such as a warm red ginger compress. Based on the above background, the researcher was interested in taking a study entitled “The Effect of a Warm Red Ginger Compress on the Decrease in Rheumatoid Arthritis Pain in the Elderly at the Tresna Werdha Pagar Dewa Social Institution Bengkulu.

### Method and Method

This research is a quantitative research with the type of pre-experimental research one-group pretest-posttest.

**Table 1: Distribution of Respondents Based on Pre-Intervention Pain Scale**

Rheumatoid Arthritis Elderly At The Social Institution Tresna Werdha Pagar Dewa Bengkulu

Pain	N	Percentage (%)
Mild Pain	2	13,3
Moderate Pain	13	86,7
Total	15	100

This research was conducted in June 2020 which was conducted at the Tresna Werdha Pagar Dewa Social Institution, Bengkulu. The population in this study were all elderly suffering from rheumatoid arthritis. The sampling technique in the study used non-probability sampling techniques, namely consecutive sampling. Sample selection was carried out by establishing inclusion and exclusion criteria.

This research data collection procedure starts from administrative procedures where getting a letter of passing the ethical test, processing a research permit to the Tresna Werdha Pagar Dewa Social Institution, Bengkulu. Furthermore, selecting potential respondents based on the inclusion criteria, asking the elderly to become respondents and explaining the purpose of the study. Then the researcher asked the respondent's identity, asked the pre-pain scale, explained the procedure or technique for warm red ginger compress, positioned the respondent as comfortable as possible, gave the compress intervention to the pain section for 60 minutes with a temperature of 45-50.5 °C. After being compressed for 60 minutes the post intervention pain scale was measured again. This action was carried out for 5 interventions.

### Result

#### Univariate Analysis

The results of the univariate analysis of this study were used to see the description of the frequency distribution of clients based on the pain scale before intervention, the pain scale after the intervention in elderly people suffering from rheumatoid arthritis at the Tresna Werdha Pagar Dewa Bengkulu Social Institution:

Based on table 1, the frequency distribution of the pain scale before the intervention of elderly respondents with rheumatoid arthritis at the Tresna Werdha Pagar Dewa Social Institution, Bengkulu, most of them fell into the moderate pain scale category, namely 13 (86.7%) while those in the mild pain scale category 2 (13.3%)

**Table 2 : Distribution of Respondents Based on Post Intervention Pain Scale Rheumatoid Arthritis Elderly At The Social Institution Tresna Werdha Pagar Dewa Bengkulu**

Pain	N	Percentage (%)
Mild Pain	8	53,3
Moderate Pain	7	46,7
Total	15	100

Based on table 2, the frequency distribution of the pain scale after the intervention of elderly respondents with rheumatoid arthritis at the Tresna Werdha Pagar Dewa Bengkulu Social Institution, most of them fell into the mild pain scale category, namely 8 (53.3%) while those in the moderate pain scale category were 7 (46.7%).

**Bivariate Analysis**

The results of the bivariate analysis were used to see the effect of warm red ginger compresses on reducing rheumatoid arthritis pain in the elderly at the Tresna Werdha Pagar Dewa Social Institution, Bengkulu. The results of these researchers themselves can be seen in the following table 3:

**Table 3: Distribution of Average Pain Scale of Respondents Before and After the Intervention in the Form of Warm Red Ginger Compress Rheumatoid Arthritis Elderly At The Social Institution Tresna Werdha Pagar Dewa Bengkulu**

Variable	Mean	SD	P Value	N
Pain Scale			0,000	15
Pre Intervention	5,22	0,94		
Post Intervention	3,89	1,01		

Based on table 3, the results of the analysis of the average pain scale pre intervention warm red ginger compress is 5.22 with a standard deviation of 0.94. After giving the warm red ginger compress the average pain scale was 3.89 with a standard deviation of 1.01. The results of the statistical test with a P value of 0.000, it was concluded that there was a significant influence between the pain scale before and after the intervention of warm red ginger compresses in the elderly with rheumatoid arthritis at the Tresna Werdha Pagar Dewa Social Institution, Bengkulu.

**Discussion**

**Univariate Analysis**

**1. Distribution of Respondents Based on Pain Scale Pre Intervention**

Based on table 1, it is known that the pain scale before being given a warm ginger compress was 13 (86.7%) experiencing moderate pain and 2 (13.3%) experiencing mild pain. The results of this study are one of the manifestations that most of the elderly experience moderate pain. This is also based on changes in the function of the musculoskeletal system such as decreased muscle mass and strength, bone decalcification, degenerative joint changes that can lead to rheumatoid arthritis in the elderly<sup>3</sup>.

The results of this study are in line with research conducted by Hamdana (2018) note that the intensity of pain before compressing is 9 respondents (60%)<sup>6</sup>. These data are the same as a study that is currently being carried out where the pain is the mildest by elderly people with arthritis who have moderate pain. This pain is a form of subjective and emotional sensory experience that is unpleasant tissue damage, especially in the joints of the elderly with rheumatoid arthritis.

According to researchers, if this is allowed to prolong it will increase the increase in intention. This increase can be characterized as a result of synovial damage which will lead to infection. This infection can attack the synovial area so that joint damage with the end result appears pain intensity with an increasingly bad category

## 2. Distribution of Respondents Based on Pain Scale Post Intervention

Based on table 2, it is known that the scale of pain in the elderly with rheumatoid arthritis after the intervention of warm ginger compress therapy at the Tresna Werdha Social Home is as many as 8 (53.3) experienced mild pain and 7 (46.7%) experienced moderate pain. Based on the results of this study, it can be seen that there is a decrease in the pain scale after the intervention of the red ginger warm compress.

The results of this study are in line with the research of Rahayu (2017) where the pain scale after the intervention of red ginger is mostly on a scale of 2 and 3 with (mean 2.5) these results indicate a decrease in pain scale after this intervention because of red ginger<sup>7</sup>. has a higher oil and oleoresin content than other types. The results of the study also said that after the ginger compress was carried out, the pain scale of the respondents was mostly in the mild category according to 9 respondents (60%) or experienced a decrease in the pain scale in the elderly with rheumatoid arthritis<sup>6</sup>.

While the results of this study are also in line with the research of Hemmati 2016) which presents herbal remedies which contain ginger which can help improve the condition of patients with rheumatoid arthritis<sup>8</sup>. These improvements take the form of minimal reduction of inflammation and pain. The hope will eventually be to apply the dosage to chemical management uses

According to researchers the cause of reduced pain intensity also occurs due to the presence of the

enzyme cyclo-oxygenase found in red ginger which has an impact on reducing inflammatory conditions. In addition, the content of red ginger, which can release a hot and spicy sensation, can cause vasodilation of blood vessels, especially those in the area where the compress is applied so that this condition will inhibit the release of pain receptors with the manifestation that the elderly will feel more comfortable than the previous condition.

## Bivariate Analysis

Based on table 3 the average pain scale before the intervention was 5.22 with a standard deviation of 0.94. After giving the warm red ginger compress intervention, the mean pain scale was 3.89 with a standard deviation of 1.01. The statistical test results obtained a P value of 0.000, it can be concluded that there is a significant influence between the pain scale before and after the intervention of warm red ginger compresses in the elderly with rheumatoid arthritis at the Tresna Werdha Pagar Dewa Social Institution, Bengkulu.

The results of this study are in line with the research of Rahayu (2017) where it was found that there was a significant effect of giving red ginger compress therapy in reducing joint pain in elderly people with rheumatoid arthritis with a p value. 0.037 (p <0.05)<sup>7</sup>. Ginger rhizome has the same pharmacological properties as NSAID drugs which can reduce inflammation and pain in the elderly with fewer or no side effects compared to pharmacological management<sup>9</sup>. This is also based on the nature of ginger which has pharmacological and physiological effects where ginger is able to release heat compounds, as anti-inflammatory, anti-tumor, antioxidant, helps lose weight and as a treatment for the digestive tract<sup>10</sup>.

Ginger is a good therapy for pharmacological side therapies such as NSAIDs and DMRAD which are given orally for the treatment of arthritis, both pain and inflammation. benefits or good responses to reduce inflammation and pain<sup>11</sup>. This is in line with the opinion of Therklason (2010) that ginger compresses are able to create a feeling of warmth in the body so that it makes the client relax which results in increasing the opportunity to rest the client and feel calmer, more comfortable and reducing body tension because ginger contains heat, anti- inflammation and analgesics that can reduce pain in clients with musculoskeletal problems including rheumatoid arthritis<sup>12</sup>.

According to researchers the activeness of the

elderly to follow the process of giving intervention in the form of warm red ginger compresses will increase maximum results related to reducing the scale of rheumatoid arthritis pain which is based on the content of the compounds in red ginger which also has an important role in reducing the pain scale. in the elderly because red ginger has the effect of being able to dilate blood vessels around the compressed area so that pain receptors such as prostaglandins, histamine and bradykinin can be inhibited, so that the pain scale decreases.

### Conclusion

The scale of pain in the elderly with rheumatoid arthritis before being given warm ginger compress therapy at the Tresna Werdha Pagar Dewa Bengkulu Social Institution, as many as 13 respondents (86.7%) experienced moderate pain and 2 respondents (13.3%) experienced mild pain

The scale of pain in the elderly with rheumatoid arthritis after being given warm ginger compress therapy at the Tresna Werdha Pagar Dewa Bengkulu Social Institution, as many as 8 respondents (53.3%) experienced mild pain and 7 respondents (46.7%) experienced moderate pain

There is an effect of a warm red ginger compress on the reduction of rheumatoid arthritis pain at the Tresna Werdha Pagar Dewa Social Institution, Bengkulu.

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**Ethical Clearance:** Health Research Ethics Committee, Health Polytechnic of Health Ministry Bengkulu

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