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EFFECT OF GIVING WARM COMPRESS THERAPY AND BAY LEAF DECOCTION TO SCALE LEVEL GOUT *ARTHRITIS PAIN*

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ABSTRACT

Gout arthritis is a disease in which joint inflammation that caused by excess uric acid in the joint. The prevalence of joint disease in Indonesia is 7.3% in 2018 and the prevalence of prevalence of joint/ rheumatic/ rheumatic disease 20.1%, the prevalence of Gout Arthritis in Central Java is 25.5%. The major problem in gout artrhitis is pain with mild scale to unrestrained. Efforts to overcome joint pain can be done with pharmacological either non-pharmacological therapy. The non- pharmacological therapies is warm compresses and boiled bay leaves, that believes can reduce pain. The purpose of this study was to determine the effect of warm compresses and bay leaf stew on the level of gout arthritis pain scale. This study used a quasi-experimental design with pretest-posttest with control group. 52 respondents were selected using total sampling technique. This study uses the Mann Whitney test with α 0.05. The results of this study showed p value 0.001 ($p < 0.05$) which means there is a difference between the level of pain scale in patients with gout arthritis before and after warm compress therapy and giving bay decoction. For people with gout arthritis pain, should uses non-pharmacological interventions such as warm compress therapy or take a bay leaf stew to reduce the scale of pain.

Keyword: bay leaf decoction; gout arthritis; therapy warm compresses

INTRODUCTION

Uric acid or commonly referred to as *Gout Arthritis is* a disease disorder where joint inflammation occurs due to excessive buildup of uric acid (Amalia, 2013). Normal uric acid levels in men range from 3.5-7 mg/dl and in women 2.6-6 mg/dl (Sandjaya, 2014). *Gout Arthritis or* Uric Acid comes from a crystal deposit shaped like a needle in the joint, thus causing inflammation with severe pain in the affected part of the joint (Widi, 2011). It can *be concluded that Gout Arthritis* or Uric Acid is a disease in which the condition has inflammation in the joints that can not be controlled so that it causes crystal buildup *and gout arthritis* or uric acid. *Gout arthritis* is suffered by many men aged 40 years, but currently gout is also suffered by men in their 30s, this is related to the diet consumed containing high purines (Soeroso, 2011). Sekarang is not a few who suffer from *Gout* Arthritis or Uric Acid that occurs in adulthood, namely the age of 30 years, there are cases *of Gout Arthritis* or Uric Acid by 32% that occur at the age of under 34 years throughout The Territory of Indonesia.

According *to Word Health Organitation* (WHO) prevalence of Gout Arthritis or Uric Acid. in the United States 2.6% in 1000 cases and 10 *cases of Gout Arthritis* or Uric Acid occurring in *Gout Arthritis* or Secondary Uric Acid. The prevalence of joint disease in Indonesia was 7.3% in 2018 and the prevalence of joint/rheumatic/goy disease (20.1%) lower than in 2013 (24.7%). Prevalence of joint disease at the age of 15-24 years 1.2%, age 25-34 years 3.1%, age 35-44 years 6.3%, age 45-54 years 11.1%, age 55-64 years 15.5%, age 65-74 years 18.6%, age ≥75 years 18.9%. Prevalence based on doctor diagnosis interviews is highest in Aceh (13.3%), followed by Bengkulu (12.7%), Papua (11.5%) and Bali (10.8%). Prevalence of joint disease is higher in women (8.5%) compared to men (6.1%). The prevalence *of Gout* Arthritis or Uric Acid in Central Java is 25.5% (Riskesdes, 2018).

The impact that can be *caused on gout arthritis* is severe pain, and will disturb the comfort of elderly life (Misnadiarly, 2007). According to Herdman, T. Heather (2012) damage to physical mobility is bordering onfreedom of movement of certain physical parts of the body or one or moreextremities. So, most people who experience gout choose to take drugs that are sold in the market or buy them nearby diapotek.

Determined regulations and government regulations to improve the degree of health is contained in the Regional Regulation, especially in Central Java Province which specifically regulates the welfare of the elderly, namely regulation No. 6 of 2014. The Central and Local Governments have provided full support for improving the welfare of the elderly both through empowerment for potential elderly as well as protection, health and social services involving various related parties from the central government, local government, communities and families (Sulistyo, Ade, Sudarsana et al., 2015).

Treatment *of Gout Arthritis* or Uric Acid can be done in two ways, namely with pharmacological and non-pharmacological therapy. Treatment of pharmacological therapy can be done by using synthesis drugs that there are side effects that are not few for the body. While the treatment of non-pharmacological therapy is one of the complementary-alternative therapies more suitable for metabolic and degenerative diseases, although in its long use but the side effects are relatively small if used appropriately so that it can be the choice of people to *overcome the disease Gout Arthritis* or Uric Acid (Snyder, 2009). Bay leaf (*Syzygium polyantum) is* a *traditional medicine Gout Arthritis* or Uric Acid, one of which is known among the people of Indonesia, in addition to traditional medicine bay leaf is also known as a seasoning for cuisine that functions as a flavoring dish (Hidayat, 2015). Bay leaf has properties because it has content *such as flavonoides,* essential oils (*citric and eugonol)* and analgetic. The compound contained in *flavonoides serves* to inhibit the formation of uric acid in the blood, this compound also has diuretic properties that serve to shed urine so that *it can lower Gout Arthritis* or Uric Acid through the urine that has been released (TRUBUS, 2009).

Many studies on the benefits and properties of bay leaf decoction are proven to be effective to reduce the scale of uric acid pain, among others penelitian that has been done by (Cahyanti, 2016; Cumayunaro, 2017) it was obtained that the decoction of bay leaf can decrease the intensity of *pain experienced by patients with Gout Arthritis* or Uric Acid obtained significant results decreased. Giving Bay Leaf As much as 5 sheets boiled with water for ±10 minutes (from ± 400 cc to ± 250 cc) drunk twice a day (morning and afternoon) (Yenni Cahyanti, 2016). In addition to the administration of bay leaves, another non-pharmacological method that can be used to reduce the pain of *Gout Arthritis* or Uric Acid is to perform a warm compress.. The administration of warm water compresses is a nursing intervention that has long been application by nurses and all circles of society, warm water compresses are recommended to reduce pain because it can relieve pain, improve muscle relaxation, improve circulation, improve psychological relaxation, and *provide comfort, working as a counteriritan* (Koizier & Erb, 2010).

Based on research conducted by (Melti, 2016; Siregar, 2018) it was found that there is a reduction in pain *experienced by patients with Gout Arthritis* or Uric Acid after the administration of compresses using warm water media is effective against the pain scale *of Gout Arthritis* or Uric Acid patients who showed a significant decrease in warm water compress results. The administration of warm water compresses is done by using buli-buli

(WWZ),attach WWZ with sanders in the joints that feel pain for 20 minutes (Adi Permadi, 2017). Warm compress therapy and decoction of bay leaf is expected to reduce the pain of gout. *Gout arthritis* is a disease that is widely experienced by people in general aged 30 years and over. However, in general there are still many who use medications to reduce *gout arthritis pain.* Using non pharmacological such as warm compresses and decoction of bay leaves is rare. From the results of a preliminary study conducted on October 1, 2018 at uptd Puskesmas Kendal 2 *recorded* 196 gout *arthritis* or uric acid patients with men numbering 42 and women a number of 54, the data was taken in the period 2017 in January - December.. Prevalence based on data from uptd Puskesmas Kendal 2 is highest in Karangsari Village (40 people) followed by Banyutowo (36 people) and Bandengan (35 people). After interviews with 10 people who *experienced gout arthritis*pain, 7 out of 10 people used medications to reduce the pain *of gout arthritis* in the appeal of using warm compresses and decoction of bay leaves.

METHOD

Design research using *quasi experiment.* The design of this study uses *pretest posttest with control group..* The study's research subjects were distinguished into two groups, the intervention group and the control group. The study sampled 52 respondents. Data analysis techniques used in this study *Man Withney test.*

RESULTS AND DISCUSSION

Data distribution of the effect of giving warm compress therapy and decoction of bay leaf against the level of Gout Arthritis Pain Scale in Kendal City as follows:

Table 1.
Central Tendency of Respondent Characteristics (n=52)

Variabel	Mean	Mean	Median	Min	Max
Age of Respondent (years)					
Intervention Group Control	26	39,12	38,50	24	57
Group	26	43,88	43,50	26	65

Table 2.
Characteristics of respondents based on gender, occupation and education (n=52)

	Intervention Group		Control Group			
Variabel	f	%	f	%	f	%
Gender						
Male	10	38,5	10	38,5	20	38,5
Women	16	61,5	16	61,5	32	61,5
Job						
Not Working	1	3,8	5	19,2	6	11,5
Farmers	6	23,1	8	30,8	14	26,9
Self employed	18	69,2	11	42,3	29	55,8
Civil Servants	1	3,8	2	7,7	3	5,8
Education						
Sd	1	3,8	1	3,8	5	9,6
Junior	2	7,7	3	11,5	17	32,7
High school	7	26,9	10	38,5	25	48,1
Scholars	15	57,7	10	38,5	3	5,8
No School	1	3,8	2	7,7	2	3,8

Table 1, the data analysis obtained that the average age of respondents intervention group and control group is 41.5 years with the median value of respondents is 41.00. The youngest is 24 years old and the oldest is 65 years old. Table 2, the data analysis showed that the majority of respondents of intervention group and control group of female gender as many as 32 respondents (61.5%), while men as many as 20 respondents (38.5%). The majority worked as self-employed, namely 29 respondents (55.8%). The educational background is mostly high school graduates as many as 25 respondents (48.1%).

Table 3.
Frequency Distribution of Respondent Characteristics Based on One's Experience (n=26)

Variabel	f	%
Taking Drugs Low Purine Diet	6	23,1
Consuming Herbs	10	38,5
Not Doing	8	30,8
	2	7,7

Based on the results of the data analysis showed that most respondents had experience to reduce pain through a low purine diet as many as 10 respondents (38.5%), while only 2 respondents (15.4%) who have experience of reducing pain do nothing.

Table 4.
Distribution of Respondents' Pain Scale Before And After Being Given Warm Compress therapy and Bay Leaf Decoction In Intervention Group (n=26)

Pain Scale	Before Intervention		After Intervention	
	f	%	f	%
No Pain	0	0	9	34,6
Mild Pain	7	26,9	15	57,7
Moderate pain	14	53,8	2	7,7
Severe pain	5	19,2	0	0

Based on the results of the data analysis showed the scale of pain of respondents before being given warm compress therapy and decoction of bay leaf in the majority were on the medium pain scale as many as 14 respondents (53.8%). After being given the majority intervention was on a mild pain scale with the results of 15 respondents (57.7%).

Table 5.
Distribution of Pain Scale Before and After Intervention Group Given Warm Compress therapy and Bay Leaf Decoction In Control Group (n=26)

Pain Scale	Before Intervention		After Intervention	
	f	%	f	%
No Pain	0	0	0	0
Mild Pain	5	19,2	10	38,5
Moderate pain	18	69,2	14	53,8
Severe pain	3	11,5	2	7,7

Based on the results of the data analysis showed the scale of pain of respondents before the intervention kelompk given warm compress therapy and decoction of bay leaf in the majority were on the medium pain scale as many as 18 respondents (69.2%). After being given the

majority intervention was on a mild pain scale with the results of 14 respondents (53.8%).

Table 6.
Effect of Pain Scale Level After Given Warm Compress Therapy Intervention And Bay Leaf Decoction In Intervention Group and Control Group (n=52)

		After Therapy										
Before Therapy	Pain Level	No pain		Light		Moderate		Weight		Total		P
		f	%	f	%	f	%	f	%	f	%	
Interventi on Group	Light	6	66,7	1	6,7	-	-	-	-	7	26,9	0,001
	Moderate	3	33,3	11	73,3	-	-	-	-	14	53,8	
	Weight	-	-	3	20,0	2	100,0	-	-	5	19,2	
Control Group	Light	-	-	5	50,0	-	-	-	-	5	19,2	0,149
	Moderate	-	-	4	40,0	14	100,0	-	-	18	69,2	
	Weight	-	-	1	10,0	-	-	2	100,0	3	11,5	

Based on the analysis of the results of the study with the mann-whitney test obtained the results of the intervention group / treatment after being given warm compress therapy and decoction of bay leaf experienced a decrease in pain levels compared to the control group. There was a difference in pain levels between the intervention/treatment group and the control group (p = 0.001).

Table 7.
Differences in Pain Scale Levels After Being Given Warm Compress Therapy Interventions And Bay Leaf Decoction In Intervention Groups and Control Groups (n=52)

Respondents	Mean rank	*Z*	*Q*
Intervention Group	32,08	-4.533	0,001
Control Group	20,92		

Based on the analysis of the results of the study with the mann-whitney test obtained the results of the value of Z = -4,533 with the identification of p= 0.001 (p < 0.005) so that it can be concluded that there is a significant value difference between the average intervention group and the control group therefore H0 rejected shows that "There is a difference between the level of *pain scale in people with gout arthritis* before and after being given warm compress therapy and the stewing of bay leaves in Kendal City". Where the results were obtained that the average pain scale level *in people with gout arthritis* Intervention Group was higher at 32.08 compared to the level of pain scale *in people with gout arthritis* Control Group of 20.92.

Age

Based on the results of the study data analysis can be known that the average person with gout arthritis occurs in people with an average age of 41 years it is said at that age has a greater risk of developing *gout arthritis* or gout. Meanwhile, the *24-year-old gout arthritis* sufferer is at risk of *gout arthritis*. The findings show that *gout arthritis sufferers are mostly* late adults. This result is in line with the theory of Kertika Nyoman (2009) which says that the more age in women will occur menoupouse and cause the hormone esterogen decreased so that the risk of high increase in uric acid and in men entering adulthood more age then uric acid levels can be high. It is suspected that androgen hormones are increasing so that it makes uric acid in the blood high. These results are in line with several studies (Munawaroh, Ari & Yulia, 2018; Soeroso, 2011) where it is said that *gout arthritis is* widely suffered at

the age of 40 - 49 years with a percentage of about (64.7%). So it can be concluded that the age of one of the factors that influence *the incidence of gout arthritis*sufferers, the older the age, the greater the risk *of developing gout arthritis* or gout.

Gender

Based on the results of the study, data analysis can be found that *gout arthritis* sufferers show women are at greater risk of *gout arthritis* or gout than men. It can be caused that most women *suffering from gout arthritis* are those who enter menopause. Soeroso (2011), argues that women who are in menopause, estrogen hormones will decrease so that they are not able to control the disposal of uric acid through urine.

According to Dalimarta (2008) the theory expressed at the age of > 50 years of women there is a decrease in estrogen hormone, if the hormone estrogen decreases then there is a lack of uric acid discharge so that uric acid levels increase, in this case women are more at risk of developing uric acid after premenopausal. This study is in line with the results of research conducted Rusnoto (2015) said that in the characteristics of uric acid pain based on gender, the results were obtained that those who suffered from uric acid pain of the female gender (63.3%) and male (36.7%). Several studies have also shown that the *majority of Gout Arthritis* sufferers are female (Yenni, 2016; Munawaroh, Ari & Yulia, 2018).

Worker

Based on the results of the study analysis of data from work characteristics showed that the self-employed are likely to experience *gout arthritis.* From these results showed that most *gout arthritis sufferers* in this study worked, someone who did sle heavy activities was more likely to have *gout arthritis.* One of the causes that affect uric acid levels is exercise or seduous physical activity. According to Mayes (2013) the theory expressed sports or physical activity will lead to increased levels of lactic acid. Lactic acid is formed from the glycolysis process that occurs in the muscles. If the muscles contract in anaerobic media, i.e. the media that does not have oxygen then the glycogen that becomes the final product of glycolysis will disappear and appear lactate as the final production. An increase in lactic acid in the blood will lead to a decrease in the production of uric acid by the kidneys. This research is in line with the results of research conducted by Aqidatul Izzah P (2017) said that in *the characteristics of people with Gout Arthritis* or gout based on work obtained the results of the work to be self-employed (44.7%).

Education

Based on the results of the study analysis of data from educational characteristics *showed that gout arthritis* sufferers mostly have a high school education background. These results show that *gout arthritis sufferers* have a good education. Someone who has a good education will easily absorb information from the outside. This means that respondents whose education is getting higher will easily get information about *gout arthritis* and how to reduce the pain.

According to Notoatdmojo (2012) the theory expressed knowledge has a very close relationship with education where it is expected that a person with higher education then the broader the knowledge, but it should be emphasized that a person is low educated does not mean absolute low knowledge anyway. This research is in line with research conducted by Lase (2015) said that the majority of respondents are high school educated (66.7%). So that the respondents who are examined can easily understand and absorb information about

diseases and interventions provided to reduce the scale of joint pain felt by respondents.

Health search efforts to overcome Uric Acid Pain by gout arthritis *sufferers* thereis a control group

Based on the results of data analysis can be known that most *people with gout arthritis* do a diet low purines (34.6%) to overcome the pain scale. These results showed that most *gout arthritis sufferers in* this study in the control group had experience with doing a low purine diet. According to Faaris (2011) the theory expressed in foods high in purines is said to contribute to the increase in uric acid. Limiting the consumption of purines high or by doing a diet low in purines will be able to prevent or lower uric acid levels in the blood so that there is a decrease in the pain scale. Several studies also showed the same thing that *gout arthritis sufferers* obtained a significant relationship between foods source of purines high and joint pain in people with gout arthritis (Indrawan, 2009; Hazielawati, 2014; Ervi, 2013).

Identify the effect of warm compressing therapy and bay leaf decoction on the scale level *of Gout Arthritis pain*

Based on the results of the study it can be known that gout arthritis sufferers in the intervention group before being given an intervention have a moderate pain scale (53.8%) and after intervention had a mild pain scale (57.7), while in the control group before being given the intervention had a moderate pain scale (69.2%) and after being administered without intervention has a moderate pain scale (53.8).

According to Fajriyah, et al, (2013) the theory that the use of warm compresses can increase blood flow to an area and can reduce pain by speeding healing. Increased blood flow can get rid of inflammatory products such as bradykinin, histamine and prostaglandins that cause local pain. In addition warm compresses can stimulate nerve fibers that close the gate so that the transmission of pain impulses to the spinal cord and brain can be inhibited. Mekanisme warm compresses can cause vasodilation that is the dilation of the diameter of blood vessels that occurs when the muscles in the walls of the blood vessels relax (relax) because the purpose of the warm compress is to soften fibrous tissue, make the body muscles more relaxed, lower pain, and expand the blood flow supply and provide calm to the client (Kimin, 2009).

The research is in accordance with the results of research conducted Yohana (2017)said that warm compresses can have an effective impact for people with gout who feel pain, where when the compress is placed in a place of pain then the heat will move to the body or skin, so that the conduction process that occurs in the body so that it causes vasodilation of blood vessels and lowers tense muscles so that the muscles become relaxed and pain will be reduced.. Several studies have also shown the same point of giving warm compresses to a significant decrease in the scale of joint pain in gout arthritis sufferers (Izza, 2014; Wurangian, Bidjuni, & Kallo, 2015; Melti Suriya, 2016; Munawaroh, Ari & Yulia, 2018).

Bay leaf has a strict taste, some diseases that can be treated using bay leaf include Gout Arthritis or Uric Acid, diarrhea, high cholesterol, diabetes (Hidayat, 2015). According to Sumono, (2012) bay leaf there is a content that can reduce pain in people with gout arthritis is flavanoids, Flavonoids are antioxidants that can inhibit xantin oxidase, so it can inhibit the formation of uric acid and reduce pain caused by calcification in the joints of gout arthritis sufferers. The content of essential oils contained in bay leaf is 0.05% (consisting of sitral, eugenol, tannins and flavonoids) which are antibacterial and savory flavor. (Pranoto,

2013).

Decreased intensity of pain after administration of bay leaf decoction water is influenced by eugunol compounds contained in bay leaf, as analgetic eugunol compound can inhibit biosynthesis of prostaglandins and as an anti-inflammatory of phenol compounds that inhibit leucoyte chemataxis, oleh therefore joint pain in peoplewith gout arthritis can also be reduced (Azuma et all, 2010). Several studies are also in line to show the influenceof the administration of bay leaf decoction terhadap decreased the scale of joint pain in patients with gout arthritis significantly (Ayuro, 2017; Yenni, 2016).

Analyzing Differences in Therapy for Giving Warm Compresses And Decoctions of Bay Leaves To The Level *of Gout Arthritis Pain* Scale

Based on the results of *the study using the Mann - Whitney t-test* showed the scale of pain before and after being given warm compress therapy and decoction of bay leaf obtained the result of *p value* 0.001 < 0.005. Based on these results can be concluded that H0 ditolak means there is a difference between warm compress therapy and bay leaf decoction against the scale level of *gout arthritis pain* in kendal city. So there is adifference in the two groups against the level of *gout arthritis pain scale.*

Hasil study data analysis known from 52 respondents who have beenanalyzed obtained 26 people with gout arthritis in the majority intervention group experienced mild pain (57.7%) after being given a warm compress therapy intervention and decoction of bay leaf, while 26 people with gout arthritis in the majority control group experienced moderate pain (53.8%) , with the averagevalue of the intervention group and control group got a berdeda results. Dobtained the results that the average pain scale level in *people with gout arthritis* Intervention Group was higher at 32.08 compared to the pain scale of *gout arthritis patients* in the Control Group of 20.92.

Mekanisme warm compresses can cause vasodilation i.e. dilation of the diameter of blood vessels that occurs when the muscles in the walls of the blood vessels relax (relax) because the purpose of a warm compress is to soften fibrous tissues, make the body's muscles more relaxed, lower pain, and radiate the blood flow supply and provide calmness to the client (Kimin, 2009). Warm compresses can also reduce pain by using the kutaneus stimulus method. This kutaneus stimulus can also cause the release of endhorpines, so that it can block the transmission of pain through *the theory of gate control* so that the sensory nerve fiberS A- beta is active. The process will reduce pain transmission through fiber C and delta A so that it can cause closed gate from pain (Yuliawati, Aniroh, & Priyanto, 2015).

Daun salam there is a content that can reduce painin people with gout arthritis is *flavanoids, Flavonoids* are antioxidants that can inhibit xantin oxidase, so it can inhibit the formation of uric acid and reduce pain caused by calcification in the joints of gout arthritis (Sumono, 2012). In this case, this intervention can be used to lower the pain scale of *gout arthritis and* this intervention can decrease the scale of *gout arthritis pain.*

CONCLUSION

There is a difference between the level of pain scale in people with gout arthritis before and after being given warm compress therapy and the administration of bay leaf decoction in the city of Kendal with the result of p-value 0.001.

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