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Research Articles

Effect of Combination Therapy with Acupressure and Warm Compresses (Aku-SeHat) to Reduce Joint Pain in the Elderly

Nur Oktafiani¹, Lita Heni Kusumawardani^{2*}

¹Nursing Study Program, Jenderal Soedirman University, Indonesia

*Email Correspondent:

litahenikusumawardani@unsoed.ac.id



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Conflict of interest statement: The researcher stated that this research was aimed at developing nursing science and this research was free from any conflict of interest, both individual and organizational.

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Abstract

Backgrounds: An elderly group is a high-risk group for suffering from health problems, one of which is joint pain. Joint pain in the elderly will affect their quality of life of the elderly. One of the complementary therapies to reduce joint pain in the elderly is a Combination Therapy of Acupressure and Warm Compresses (Aku-SeHat).

Objectives: This case study aims to determine the effect of a Combination Therapy of Acupressure and Warm Compresses (Aku-SeHat) to reduce joint pain in the elderly.

Methods: The research method uses a case study design. The sample used was 3 elderly with inclusion criteria belonging to having complaints of knee joint pain in the category of severe pain (scale 7-10) and being able to participate in therapy with predetermined procedures and time. Aku-SeHat therapy is carried out 7 times in 7 days for 30 minutes. Univariate data analysis is presented in the frequency distribution while bivariate analysis uses the Wilcoxon test.

Results: The results of the case study showed that there was a significant effect of giving Aku-SeHat therapy to reduce joint pain in the elderly with the Wilcoxon test results obtained a p-value of 0.0001 ($p < 0.05$).

Conclusion: The results of the case study showed that there was a significant effect of giving Aku-SeHat therapy to reduce joint pain in the elderly. Therefore, it is hoped that Aku-SeHat therapy can be an alternative to complementary therapy as a nursing intervention to reduce joint pain.

Keywords: acupressure, elderly, joint pain, warm compresses

Introduction

An elderly group is a group at high risk of suffering from health problems that are characterized by physical, biological, psychological, and social changes caused by the aging process including joint disorders. Joint disease is a degenerative process that causes joint pain in the elderly.¹ The World Health Organization (WHO) says that joint pain is most common in individuals over the age of 60. Nearly 80% of elderly people aged over 50 years have complaints in their joints such as rheumatic pain, aches, and pains. The joints affected are the joints of the fingers, spine, and, weight-bearing joints (knee and hip). Joint pain is often felt due to rheumatism. Joint pain has suffered by 151 million people in the world with 24 million of them in the Southeast Asia region. The prevalence of joint pain in Indonesia reaches 34.4 million with a disease ratio of 15.5% in men and 12.7% in women. Meanwhile, the prevalence of joint pain in the elderly in Central Java reaches 25.5% of the population in Central Java.²

Joint pain causes joint stiffness, swelling, limited range of motion in the joints, and physical fatigue and can cause disability in the sufferer. Joint stiffness occurs in the morning, this can last for one to two hours.³ Restrictions on movement and decreased musculoskeletal abilities can reduce physical activity and exercise so that it will affect the elderly in carrying out activities of daily living (Activity Daily Living/ADL) which will affect the chronic-progressive quality of life of the elderly.⁴ With the amount of loss caused by joint pain, it is necessary to make efforts to minimize the impact caused. The interventions used in minimizing the impact of joint pain are non-pharmacological interventions and pharmacological interventions.⁵ According to research by Ischak et al., (2021)¹ warm compresses are effective in reducing joint pain. The use of warm compresses on the body can improve the flexibility of tendons and ligaments, reduce muscle spasms, relieve pain, increase blood flow, and increase metabolism.⁵ Another non-pharmacological treatment that can be used to reduce joint pain is acupressure. Acupressure, as a type of massage therapy, is the most common complementary therapy in nursing. By applying pressure to certain areas of the body, the muscles will relax, blood circulation will improve, and the patient will become more relaxed.⁶

The results of secondary data from the Puskesmas Baturraden II in the working area of Kemutug Kidul Village, the incidence of joint pain in the elderly reached 29.8% or as many as 98 patients out of 338 elderly. From these data, 40 elderly people experienced mild scale pain (scale 1-3), 55 elderly people experienced moderate pain scale, and 3 elderly people experienced severe pain scale. Results of interviews with three elderly who suffer from severe joint pain, the triggers for the emergence of joint pain are due to fatigue, walking too much, sitting too long, and elderly joint diseases such as rheumatism and gout. Pain that is usually felt like being pricked by a needle. The three elderly people felt joint pain in both knees and lower legs with a pain scale reaching a scale of 7 or severe pain. The pain is usually felt every day but comes and goes.

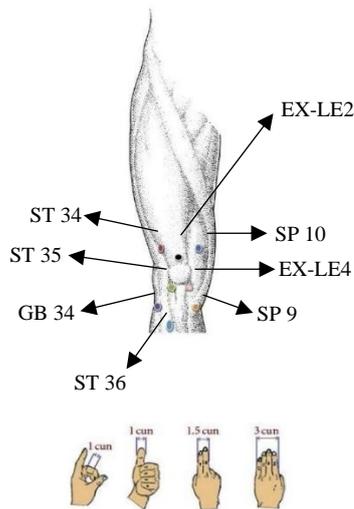
Three elderly who suffer from joint pain said that if the joint pain recurred, it would interfere with their daily activities. When the elderly feel joint pain, the treatment is carried out only by giving rubbing oil and taking over-the-counter pain medication. The elderly also said that they had never done Combination Therapy of Acupressure and Warm Compresses (Aku-SeHat) to reduce joint pain. The high incidence of joint pain in the elderly in Kemutug Kidul Village and the consequences that reduce the quality of life of the elderly, the authors are interested in providing complementary therapy, namely a Combination Therapy of Acupressure and Warm Compresses (Aku-SeHat) to reduce joint pain in the elderly.

Methods

This research is case study research with a pre-test and post-test research design with a control design. Sampling was carried out using the non-probability sampling method with the consecutive sampling technique, namely the selection of samples without a formula but was carried out by selecting everyone who met the inclusion criteria within a predetermined time. The sample in this study consisted of 3 respondents with inclusion criteria, namely willing to be respondents by signing informed consent, having complaints of knee joint pain in the severe pain category (scale 7-10), and already taking analgesics but still experiencing severe scale pain. The exclusion criteria were having no injuries and a history of surgery on the knee.

Combination Therapy of Acupressure and Warm Compresses (Aku-SeHat) is carried out 7 times in 7 days for 30 minutes. Implementation is carried out sequentially according to each client's time contract. Implementation begins with pain assessment using the Numeric Rating Scale (NRS). The next stage is a warm compress with a temperature of 40, 50°C - 43°C or lukewarm on the painful joint, namely the knee for 15 minutes and continues to do acupressure on the acupressure points on the knee (ST34, ST35, EX-LE4, EX-LE2, GB34, SP10, SP9, and ST36) for 15 minutes.

Picture 1. Picture of acupressure points used to reduce joint pain



Explanation:

ST 34: located on the thigh, on a line drawn between the outer border of the kneecap and the pelvic bone, in a 2 cun indentation above the kneecap

ST 35: located under the kneecap and on the outside of the tendon

ST 36: located below the knee, 3 cun below ST 35, one finger's width to the front of the lower leg bone

SP 9: on the inside of the lower leg just below the knee joint line

SP 10: located 2 cun above the kneecap on the deep muscle

GB 34: located below the side of the knee, 1 cun below the tip of the fibula

EX-LE 2: located in the middle just above the kneecap

EX-LE 4: located under the kneecap, and within the tendons below the kneecap

Picture source: Akbarnezhad et al. (2019)⁷

After the therapy is done, the client has measured again on the value of the pain scale. The data collection tool uses the Numeric Rating Scale (NRS), Standard Operating Procedures (SOP) for the implementation of Aku-SeHat therapy, as well as implementation observation sheets. Univariate data analysis is presented in the frequency distribution while bivariate analysis uses the Wilcoxon test. SOP for the implementation of Aku-SeHat therapy, as well as an implementation observation sheet. Univariate data analysis is presented in the frequency distribution while bivariate analysis uses the Wilcoxon test. SOP for the implementation of Aku-SeHat therapy, as well as an implementation observation sheet. Univariate data analysis is presented in the frequency distribution while bivariate analysis uses the Wilcoxon test.

Results

Univariate Analysis

The results of the univariate analysis included client characteristics (age and gender), and the results of monitoring joint pain in the elderly.

Table 1. Frequency Distribution of Client Characteristics Based on Age and Gender in the Elderly in Kemutug Kidul Baturraden Village in 2022

Client Characteristics	Frequency	Percentage (%)
Age (Years)		
Elderly (60-74)	2	66,7
Elderly Old (75-90)	1	33,3
Total	3	100.0
Gender		
Man	1	33,3
Woman	2	66,7
Total	3	100.0

Table 1 shows most clients including the elderly group (60-74 years) and the majority are female (66.7%).

Table 2. Distribution of Joint Pain Scale Monitoring Results in the Elderly in Kemutug Kidul Baturraden Village in 2022

Meeting to	Pain Scale			Decline
	Name	Pre	Post	
1	Mrs. C	7	5	2
	Mrs. T	7	5	2
	Mr. H	7	6	1
2	Mrs. C	6	5	1
	Mrs. T	7	6	1
	Mr. H	7	6	1
3	Mrs. C	6	4	2
	Mrs. T	5	3	2
	Mr. H	7	5	2
4	Mrs. C	5	3	2
	Mrs. T	5	3	2
	Mr. H	6	4	2
5	Mrs. C	4	2	2
	Mrs. T	6	4	2
	Mr. H	8	6	2
6	Mrs. C	4	2	2
	Mrs. T	5	3	2
	Mr. H	6	4	2
7	Mrs. C	4	1	3
	Mrs. T	4	1	3
	Mr. H	4	2	2
The Average Decrease in Pain Scale				2

Table 2 shows the average decrease in pain scale before and after giving therapy for seven days by 2. The client's pain scale before therapy is a scale of 7 which is severe pain. On the seventh day, the results showed a decrease in the three clients from moderate pain (scale 4) to mild pain (scale 1-2).

Bivariate Analysis

Table 3 shows the results of the analysis using the Wilcoxon test obtained sig. (2-tailed) has a value of 0.0001 where the value is $0.0001 < 0.05$, which means that there is a significant effect of giving a Combination Therapy of Acupressure and Warm Compresses (Aku-SeHat) on the scale of joint pain in the elderly.

Table 3. Analysis of the Effect of Acupressure and Warm Compress Combination Therapy (Aku-SeHat) to Reduce Joint Pain in the Elderly

Variables	Median	Mean	N	Z	Sig. (2-tailed)
Pre-test	6	7	3		
Post-test	4	2	3	-3,763	0.0001

Discussion

Based on the results of the case study, it was shown that most clients were women and elderly experiencing joint pain on a scale of 7 which included severe pain. The three clients showed almost the same symptoms of joint pain, namely the client had complaints of joint pain in both knees which had been felt for about one to two years. The majority of the client's joint pain scale at the time of assessment and the first day of implementation was a scale of 7 which included severe pain. Aligned with research by Hannan et al. (2019)⁸ which states the number of elderly who experience severe joint pain reaches 21.9% of 32 elderly and in research by Sonhaji et al. (2021)⁹ the average pain scale felt by the elderly is 6.63 where on this scale the pain is intense which means the pain feels stabbing so strong. The joints most often in pain are the joints of the fingers, knees, ankles, and toes. The pain may last for 3-10 days. Symptoms that are not treated immediately will interfere with the activities of the elderly.¹⁰ According to Akbarnezhad et al. (2019)⁷, joint pain in the elderly often occurs when sitting too long, walking a lot, going up and down stairs, standing upright for too long, and at night when going to sleep. Joint pain causes limited movement and decreased musculoskeletal abilities which can reduce physical activity, exercise, and rest so it will affect the elderly in carrying out activities of daily living (Activity Daily Living/ADL) which will affect the chronic-progressive quality of life of the elderly.⁴

The results of the Wilcoxon test showed that there was a significant effect of giving Combination Therapy of Acupressure and Warm Compresses (Aku-SeHat) to reduce joint pain in the elderly with sig. (2-tailed) is worth 0.0001 ($p < 0.05$). These results are in line with the research by Lestari et al. (2019)¹¹ which showed that there was a significant difference in the joint pain scale before and after the action of the combination of acupressure point Ki.3 and warm compresses ($p < 0.001$). Research conducted by Hannan et al. (2019)⁸ also showed that there was a significant effect between warm compresses and the incidence of pain levels in patients with osteoarthritis at the elderly Posyandu in the Pandian Sumenep Health Center with a p-value of 0.00. Another research that supports acupressure can reduce joint pain is research by Akbarnezhad et al. (2019)⁷ with a p-value of 0.0001 indicating that acupressure can be an effective intervention to reduce joint pain, and joint stiffness, and improve knee function.

Changes in the pain scale in this case study, from an average pain scale before therapy of 7, decreased to 2 after the Aku-SeHat therapy was carried out. These results are in line with research Ischak et al. (2021)¹ which showed that 30 joint pain respondents who had been given warm compresses significantly decreased with a p-value of 0.000 from an average pain scale of 4.73 to 1.97. Decreased pain scale after acupressure in the study Ziliwu et al. (2021)¹² also shows significant results as evidenced by the sig value. (2-tailed) 0.00 and changes in pain scale after acupressure, from an average scale of 6.52 to 3.14. The decrease in pain levels that occurs after being given warm compresses and acupressure therapy is following the Gate Control Theory mechanism by Melzack and Wall (1965), which states that pain impulses are transmitted when a defense is opened and impulses are inhibited when the defense is closed. Efforts to close these defenses occur when warm compresses and acupressure are applied which can inhibit pain impulses that will be conveyed to the brain to be perceived.^{8,12}

Biologically, the effect of warm compress therapy on areas of the body according to Potter & Perry (2005) will give a signal to the hypothalamus via the spinal cord resulting

in vasodilation. This vasodilation causes blood flow to every tissue, and there will be a decrease in muscle tension so that the joint pain that is felt can be reduced or even disappear.⁸ Warm compresses also function to expedite blood vessels so that they can relieve pain by reducing tension, reducing muscle contractions, increasing blood flow to the joint area, and increasing a feeling of comfort.¹³

Acupressure is done by applying physical pressure to several points on the surface of the body which are places for energy circulation and balance in cases of pain symptoms.¹⁴ Acupressure can reduce the level of acute and chronic pain. Pomeranz & Stux (1989) explained the mechanism of acupressure for pain by stimulating midbrain structures by activating cells that will cause the release of norepinephrine and serotonin in the spinal cord. This neurotransmitter will inhibit pain in the presynaptic and postsynaptic. So acupressure can overcome the symptoms of pain that appear in the joints, increase muscle ability and range of motion and increase blood circulation in the joints.¹²

Providing Aku-SeHat therapy for 7 days gets a good client response. The three clients said that after the therapy, joint pain decreased and made the knee feel lighter when walking. The implementation of Aku-SeHat therapy is also considered easy and does not require a lot of equipment. The acupressure points used are also easy to remember and easy for clients to repeat. Clients can do this Aku-SeHat therapy independently at home. Giving acupressure at a certain point continuously has the risk of causing bruising at the pressure point. In this case study, clients did not complain about this, but only two clients complained that under one of the pressure points it felt tight on the third day of therapy. on the following day, re-evaluated and the resulting tight parts become loose and make the knees and feet feel lighter. The procedure of giving warm compresses, according to researchers, can prevent bruising, because by giving a compress first, the feet will relax and blood circulation will run smoothly. The decrease in the joint pain scale in the three clients during different therapy, is of course related to the factors that influence it. In this case study, the researchers did not control for confounding factors such as the client's activity and rest patterns, the client's medical history, and the client's level of depression.¹⁵

Conclusion

The results of the case study showed that there was a significant effect of giving Aku-SeHat therapy to reduce joint pain in the elderly. Therefore, it is hoped that Aku-SeHat therapy can be an alternative to complementary therapy as a nursing intervention to reduce joint pain.

Conflict of Interest Declaration

The researcher stated that this research was aimed at developing nursing science and this research was free from any conflicts of interest, both individual and organizational.

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