Jurnal Kesehatan Komunitas Indonesia (JKKI)
Volume 5 Issue 2, August 2025, pp 147-155
https://ebsina.or.id/journals/index.php/jkki
eISSN 2503-2801, pISSN 2985-3435

SP6 Acupressure Point for Reducing Joint Pain Among Elderly in Jombang Regency

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Article History
Submitted: 14-06-2025
Revised: 24-07-2025
Accepted: 01-08-2025

doi.org/10.58545/jkki.v5i2.557

Abstract

Joint pain due to gout is common among the elderly and becomes a major issue if not treated. The resulting pain can interfere with daily activities and affect the quality of life of older adults. Long-term pharmacological treatment can lead to severe conditions; therefore, non-pharmacological interventions such as acupressure can be beneficial for elderly populations. This study aims to analyze the effect of SP6 (San Yin Jiao) acupressure therapy in reducing joint pain among the elderly. This was a pre-experimental study using a one-group pretest-posttest design. The sample consisted of 14 respondents selected through purposive sampling. SP6 acupressure therapy was administered twice a week for 5 minutes, involving 30 presses per session. Pain levels were measured using the Numerical Rating Scale (NRS). Data analysis using the Paired Sample T-Test showed a p-value of 0.000, which is less than 0.05, indicating that SP6 acupressure therapy significantly reduces joint pain in the elderly. This study supports the use of acupressure as a safe and affordable complementary therapy. Future research is recommended to extend the intervention duration and combine SP6 with other acupoints.

Keywords: Acupressure, SP6 point, Joint pain, Elderly

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How to cite:
Rajin, M., Hariyanto, S., Urifah, S., & Sa'diyah, M. D. (2025). SP6 Acupressure Point for Reducing Joint Pain Among Elderly in Jombang Regency. Jurnal Kesehatan Komunitas Indonesia, 5(2), 147-155. https://doi.org/10.58545/jkki.v5i2.557

1. BACKGROUND

The elderly are particularly vulnerable to degenerative diseases such as joint disorders. In 2023, joint disease cases among the elderly in Indonesia increased by 11.3%, with nearly equal prevalence between males and females at approximately 12–15% (Asmarani et al., 2023; Riskesdas, 2018; Kuswandono, 2019).

Joint diseases often cause pain due to degeneration or damage to bones, leading to reduced elasticity in surrounding connective tissues, ligaments, and cartilage. This loss of joint flexibility can result in disability among older adults (Nisak et al., 2018). Joint pain refers to discomfort or soreness felt in one or more joints and can occur in the neck, shoulders, wrists, elbows, ankles, knees, hips, and

other joints. It is commonly accompanied by redness, swelling, warmth, and limited mobility (Utomo & Pujiastuti, 2023). Symptoms include joint swelling, heat, redness, pain, and movement impairment (Transyah & Rahma, 2020).

The first-line pharmacological treatment for joint pain is non-opioid analgesics, specifically NSAIDs (Non-Steroidal Anti-Inflammatory Drugs). NSAIDs are effective for mild to moderate pain and work centrally by inhibiting prostaglandin synthesis through cyclooxygenase (COX) enzyme inhibition. They have anti-inflammatory and analgesic effects that help reduce joint inflammation and pain. Commonly used NSAIDs include diclofenac, ibuprofen, ketorolac, meloxicam, piroxicam, and celecoxib (Nur Radiah et al., 2023).

However, long-term use of NSAIDs can lead to side effects and complications such as kidney dysfunction, edema, hypertension, and gastrointestinal bleeding. Approximately 56.7% of patients experience gastrointestinal disturbances such as dyspepsia, diarrhea, constipation, nausea, vomiting, and gastritis, while 16.7% develop cardiovascular issues like hypertension and hypotension particularly concerning in the elderly population (Keni Idacahyati et al., 2019).

Therefore, non-pharmacological management offers a viable solution for elderly individuals. Non-pharmacological therapies such as acupressure can effectively reduce pain without adverse effects and are safe for older adults (Cahyani, 2019). Acupressure is a touch-based therapy based on acupuncture and traditional Chinese medicine principles. It uses the same pressure points as acupuncture but applies finger pressure instead of needles. Acupressure is commonly used to relieve symptoms and pain. According to Sunaringtyas et al. (2019), acupressure stimulates nerve cells at specific acupressure points, sending signals via the spinal cord to the mesencephalon and hypothalamic-pituitary complex, thereby increasing systemic endorphin levels.

The SP6 acupressure point is believed to benefit elderly individuals suffering from joint pain by improving blood circulation, reducing inflammation, and alleviating pain. The SP6 point is located on the inner side of the lower leg, approximately four fingers (3 cun) above the ankle, along the vertical line parallel to the tibia. The pain-relieving mechanism of acupressure can be explained through a holistic theory. Depending on the patient's condition, acupressure can produce

stimulating or sedative effects by balancing yin and yang. Energy flows through acupoints to target organs via meridians. This stimulation induces biochemical, physiological, and perceptual changes—such as increased endorphin levels, improved blood and oxygen circulation, and reduced pain perception (Adikara, 2015).

Based on the above background, researchers conducted a study to determine the effect of SP6 acupressure therapy in reducing joint pain among the elderly.

2. METHODS

This study employed a pre-experimental design with a one-group pretest-posttest approach. The sample consisted of 14 respondents selected using purposive sampling. Data collection was conducted after obtaining ethical clearance on February 18, 2025, under certificate number 037-KEP-Unipdu/02/2025. All participants met the inclusion and exclusion criteria. The research instruments included a Standard Operating Procedure (SOP) and the Numerical Rating Scale (NRS) for pain assessment. The study was conducted in Ngrandulor Village, Peterongan District, Jombang. The acupressure intervention was administered twice a week for 5 minutes per session (30 presses). Data analysis was performed using the Shapiro-Wilk test for normality; if data were normally distributed, paired t-tests were used, otherwise the Wilcoxon signed-rank test was applied.

3. RESULTS

Table 1. Respondent Demographics

Characteristics	Frequency (f)	Percentage (%)
Gender		
Female	12	85.7
Male	2	14.3
Age		
60–65 years	7	50.0
66–70 years	3	21.4
71–75 years	4	28.6

The demographic data in Table 1 show that the majority of respondents were female (12 respondents, 85.7%), while males accounted for 2 respondents (14.3%). Most respondents were aged 60–65 years (7 respondents, 50.0%), followed by 71–75 years (4 respondents, 28.6%) and 66–70 years (3 respondents, 21.4%).

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Pain Levels Before and After Intervention

Table 2. Pain Scale Before SP6 Acupressure Intervention

	Mean	SD	Sig.
Pretest	7,43	1,284	.000
Posttest	5,21	,975	.000

The results in Table 2 indicate that SP6 acupressure therapy effectively reduced pain levels. Among the 14 respondents, the average pain level before intervention was 7.43 (SD = 1.284), indicating high pain intensity. After the intervention, the average pain level decreased to 5.21 (SD = 0.975), showing a notable reduction in pain. Additionally, statistical analysis revealed a significance value of .000, which is less than $\alpha = 0.05$, confirming that SP6 acupressure significantly reduces joint pain.

Analysis of the Effect of SP6 Acupressure Therapy on Joint Pain

Table 3. Paired Samples T-Test Results for Pain Levels Before and After Intervention

	Mean	Std. Deviation	Std. Error Mean	95% CI Lower	95% CI Upper	t	df	One-Sided p	Two-Sided p
Before - After	2.214	0.699	0.187	1.811	2.618	11.848	13	0.000	0.000

The paired t-test analysis revealed a statistically significant difference in pain levels before and after the intervention. The mean difference was 2.214 (SD = 0.699, SE = 0.187), with a 95% confidence interval ranging from 1.811 to 2.618. The calculated t-value of 11.848 with 13 degrees of freedom further supports this significance. The two-sided p-value of .000 (less than 0.05) confirms that the intervention was highly effective in reducing pain levels among respondents.

4. DISCUSSION

The findings of this study demonstrate that SP6 (Sanyinjiao) acupressure significantly reduces joint pain in the elderly, with a mean pain reduction from 7.43 (severe pain) to 5.21 (moderate pain) on the Numerical Rating Scale (NRS) after intervention. This result is consistent with the growing body of evidence supporting the efficacy of acupressure as a non-pharmacological pain management strategy in older adults.

The mechanism behind SP6 acupressure involves both peripheral and

central neuromodulation. Stimulation of the SP6 point activates Aδ and C sensory nerve fibers in the deep tissues, which transmit signals to the spinal cord, midbrain (mesencephalon), and hypothalamic-pituitary axis. This neurophysiological cascade leads to the release of endogenous opioids such as β-endorphins, which modulate pain perception and produce systemic analgesia (Hassan et al., 2020). Additionally, acupressure may improve local blood circulation and reduce inflammatory mediators such as prostaglandins and cytokines, contributing to decreased joint inflammation and pain (Chen et al., 2021).

Our results align with a randomized controlled trial by Wang et al. (2019), which found that SP6 acupressure significantly reduced knee osteoarthritis pain in elderly patients after four weeks of intervention, with a mean pain reduction of 2.1 points on the NRS—comparable to our observed reduction of 2.21 points. Similarly, Lee et al. (2020) reported that acupressure at SP6, combined with other acupoints (e.g., ST36 and GB34), significantly improved mobility and reduced pain intensity in elderly individuals with chronic joint pain, suggesting a synergistic effect when multiple points are stimulated.

Furthermore, a meta-analysis by Hsu et al. (2021), which included 12 clinical trials on acupressure for musculoskeletal pain, concluded that acupressure significantly reduced pain intensity compared to control groups (SMD = -0.89, 95% CI [-1.21, -0.57], $p < 0.001$). The authors emphasized that acupressure at SP6 was among the most frequently used and effective points, particularly for lower limb and joint-related pain.

Interestingly, our study achieved significant pain reduction with only 5 minutes of acupressure (30 presses) administered twice weekly, suggesting that even brief, low-intensity interventions can yield clinically meaningful outcomes. This is particularly relevant for elderly populations who may have limited attention span, mobility, or tolerance for prolonged therapy. A study by Chang et al. (2018) on elderly patients with chronic low back pain found that 5-minute daily acupressure at key points led to significant improvements in pain and quality of life after just two weeks, reinforcing the feasibility and effectiveness of short-duration acupressure protocols.

In contrast, some studies have reported more modest effects. For instance, Kim & Kim (2017) found only a moderate reduction in pain (mean change of 1.3 points) after SP6 acupressure in elderly

patients with rheumatoid arthritis, which they attributed to the complexity and chronicity of autoimmune-related joint pain. This suggests that while acupressure is effective for degenerative or mechanical joint pain (e.g., osteoarthritis), its impact may be less pronounced in inflammatory arthritides unless combined with other therapeutic modalities.

Another important aspect is patient acceptability and safety. In our study, no adverse effects were reported, which is consistent with the literature. Acupressure is widely recognized as a safe, non-invasive, and cost-effective intervention, especially suitable for elderly individuals who are often on multiple medications and at risk of polypharmacy (Cahyani, 2019; Transyah & Rahma, 2020). Moreover, because acupressure can be easily taught and self-administered, it empowers older adults to take an active role in managing their pain, thereby improving adherence and long-term outcomes.

The cultural familiarity of massage and pressure-point therapy in Indonesia may further enhance its acceptability. As a traditional practice passed down through generations, acupressure (or pijat) is already integrated into daily life among many elderly individuals, making it a sustainable and accessible complementary therapy (Handayani, 2020).

Despite the promising results, this study has limitations. The small sample size (n=14) and lack of a control group limit the generalizability of the findings. Future studies should employ larger, randomized designs and explore the long-term effects of SP6 acupressure, as well as its combination with other acupoints such as ST36 (Zusanli) and GB34 (Yanglingquan), which are also known for their analgesic and anti-inflammatory effects (Zheng et al., 2022).

5. CONCLUSION

Before the SP6 acupressure intervention, half of the elderly respondents experienced moderate to severe joint pain, indicating a significant burden of discomfort that can impair mobility and reduce quality of life. After the intervention, more than half of the participants reported a reduction in pain intensity to the mild or moderate range. Statistical analysis confirmed a highly significant decrease in pain levels, with a p-value of 0.000 ($p < 0.05$), leading to the rejection of the null hypothesis (H_0) and acceptance of the alternative hypothesis (H_1). This provides strong evidence that SP6 (Sanyinjiao) acupressure therapy has a significant effect in reducing joint pain among the elderly.

The results support the use of acupressure as a safe, non-invasive, cost-effective, and culturally acceptable complementary therapy for managing joint pain in older adults. Given the risks associated with long-term use of pharmacological treatments such as NSAIDs, non-pharmacological interventions like acupressure offer a valuable alternative, especially in community-based elderly care settings.

Therefore, it is recommended that SP6 acupressure be integrated into routine geriatric care and pain management programs. Healthcare providers, particularly nurses and community health workers, should be trained in acupressure techniques to support its implementation. Furthermore, future research should explore longer intervention periods, increased session frequency, and the combination of SP6 with other acupoints (e.g., ST36, GB34) to optimize pain relief outcomes and assess long-term efficacy.

AUTHOR CONTRIBUTIONS

The author contributes in conceptualization, data collection and analysis Mukhamad Rajin, Sufendi Hariyanto, Siti Urifah, and Miranda Dwi Sa'diyah. Writing and manuscript revisions: Mukhamad Rajin, Sufendi Hariyanto, and Siti Urifah.

ACKNOWLEDGMENT

The author want to thank you for respondents in Ngrandulor Village, Peterongan, that contribute as participants in this research.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest in this research.

DATA AVAILABILITY STATEMENT

The data are available from the corresponding author upon reasonable request.

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