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Combined Acupuncture and Infrared Therapy for Reducing Epigastric Pain Intensity: A Study at Griya Purnama Salatiga

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ABSTRACT

Epigastric pain is defined as discomfort or pain in the upper abdominal region, often accompanied by nausea, vomiting, or other associated symptoms. This condition can be effectively managed through a combination of acupuncture and infrared therapy. Acupuncture has been shown to enhance immune function by regulating hormone secretion within the digestive system. When combined with infrared therapy, it promotes the relaxation of superficial musculoskeletal structures, which is instrumental in increasing blood flow by reducing muscular pressure on blood vessels. The objective of this study is to determine the effectiveness of acupuncture therapy combined with infrared radiation in reducing pain intensity in cases of epigastric pain at Griya Purnama Akupunktur Salatiga. This study employed a quantitative research method with a pre-experimental design, specifically a one-group pretest-posttest design. The respondents consisted of 35 individuals selected based on specific inclusion and exclusion criteria. The research was conducted from July to September 2025 at Griya Purnama Akupunktur Salatiga. The results of the hypothesis testing using the Wilcoxon Signed Rank Test showed a significance value of $p < 0.001$. The results indicate that acupuncture therapy combined with infrared is effective in reducing pain scales in cases of epigastric pain at Griya Purnama Akupunktur Salatiga.

I. INTRODUCTION

Epigastric pain is a common clinical issue characterized by discomfort or pain in the upper abdominal region, often accompanied by nausea, vomiting, or other symptoms. These signs are related

to gastroduodenal disorders, which include epigastric pain, a burning sensation, abdominal fullness, bloating, or feeling full quickly⁽¹⁾.

World Health Organization (WHO) predicted that if non-communicable

diseases, including epigastric pain were not seriously treated by 2023, the global death rate could reach 73% and the sickness rate could reach 60%⁽²⁾. In 2023, the number of epigastric pain cases in Indonesia was estimated to increase from 10 million to 28 million, affecting 11.3% of the total population⁽³⁾. Meanwhile, the prevalence of epigastric pain in Central Java Province in 2023 was approximately 3.6%⁽⁴⁾.

Based on the principles of acupuncture, epigastric pain is categorized as *Wei Wan Tong* (epigastric pain), *Ou Tu* (vomiting), and *Zhong Pi* (fullness). These conditions are caused by a disharmony between the liver and stomach, which leads to stagnation in both organs⁽⁵⁾.

Acupuncture at CV 12 (*Zhongwan*), ST 36 (*Zusanli*), and PC 6 (*Neiguan*) triggers the release of β -endorphins into the bloodstream. These natural substances circulate in the body to act as a natural painkiller, providing a general analgesic effect⁽⁶⁾. Beyond pain relief, acupuncture influences gastroduodenal motility and gastric acid secretion, which are essential for improving symptoms of functional epigastric pain. Stimulation on the stomach area inhibits gastric movement by exciting the sympathetic nerves through spinal reflexes in the lower chest region⁽⁷⁾. Meanwhile, acupuncture on the extremities (hands and feet) inhibits parasympathetic activity through supraspinal reflexes in the brain⁽⁸⁾. Together, these mechanisms balance the digestive system's function and reduce pain intensity.

Infrared therapy is often used with acupuncture to speed up the healing process. This therapy provides a system to heat the surface of the skin, creating the body's natural response needed for recovery. The use of infrared light can effectively reduce or even stop pain. With a wavelength of 770 nm – 1 mm, infrared works near the light spectrum of microwaves to heat muscles and tissues

near the surface. It can penetrate to a depth of 0.81–1 mm to help relax the body and manage pain⁽⁹⁾. This study is designed to evaluate the effectiveness of combining acupuncture therapy with infrared radiation in reducing pain intensity for patients with epigastric pain at Griya Purnama Acupuncture, Salatiga.

II. METHODS

This study used a pre-experimental method with a one-group pre-test and post-test design. A total of 35 participants were selected using a purposive sampling technique based on specific inclusion and exclusion criteria. This study was implemented from July to September 2025 at Griya Purnama Akupunktur, Salatiga. The independent variable in this research is the combination of acupuncture CV 12 (*Zhongwan*), ST 36 (*Zusanli*), and PC 6 (*Neiguan*) and infrared therapy, while the dependent variable is the reduction of pain intensity in patients with epigastric pain.

The tools and materials used in this study included a VAS form, 1 cun and 1,5 cun acupuncture needles, a VAS Scale, an infrared lamp, alcohol swabs, hand sanitizer, a kidney dish, tweezers, hand-scoon, safety box, and biohazard bin. The intervention consisted of six sessions, conducted twice weekly over a four-week period, with each session lasting 15 minutes. Pain levels were measured for each subject before (pre-test) and after (post-test) the treatment using the Visual Analogue Scale (VAS) recorded on standardized observation sheets⁽¹⁾.

III. RESULT

This study started with a preliminary phase conducted from April to May 2025 to identify potential subjects experiencing epigastric pain. The results of this preliminary phase identified 35 subjects who met the research criteria. Following this, all participants received six sessions of therapy as part of the intervention.

Table 1. Characteristics of Respondents

Characteristics	N=35	(%)
Gender		
Male	13	37.1
Female	22	62.9
Age (Years)		
36-45	1	2.9
46-55	32	91.4
56-65	2	5.7
Occupation		
Housewife	11	31.4
Employees	17	48.6
Civil servants	4	11.4
Entrepreneurs	3	8.6

Table 1 shows that the gender of respondents who feel the most epigastric pain is female, as many as 22 (62.9%), the most common age is the age of 46-55, as many as 32 (91.4%), for the most work is employees, as many as 17 (48.6%)

Table 2. Decrease in VAS Scale from Before and After Treatment

Intervention	N	%
Pre-test		
4.5-7.4 cm	24	68.6
7.5-10 cm	11	31.4
Post-test		
0-4.4 cm	25	71.4
4.5-7.4 cm	10	28.6

Before the treatment, pain levels were mostly between 4.5 and 7.4 cm for 24 participants, with a mean score of 2.31. After the treatment, the scores improved, with 25 participants scoring between 0 and 4.4 cm and a mean score of 1.28. This shows an average decrease in pain of 1.03.

Table 3. The Result of Wilcoxon Test

Intervention	N	p
Pre-test	35	<0.001
Post-test	35	

Table 3 showed a significance value $p < 0.001$. This confirms that acupuncture therapy combined with infrared radiation

is effective in reducing pain intensity for epigastric pain cases at Griya Purnama Akupunktur, Salatiga.

IV. DISCUSSION

Based on the gender distribution shown in Table 1, the study population was mostly female (62.9%). Female participants have a higher risk of epigastric pain. First, many women follow strict diets because they do not want to gain weight. This leads to irregular eating habits. Second, female subjects are often more sensitive to stress. When experiencing stress, they tend to overthink, and this increases stomach acid. Hormonal factors are also important. Female hormones are more reactive and can affect gastrin. This is a hormone that makes the stomach produce too much acid. These factors together make female participants more likely to feel epigastric pain than men⁽¹⁰⁾.

Table 1 shows that the majority of the research subjects were in the 46-55 years (91,4%) group. The risk is higher for those above 46 years old. This is primarily due to the increased prevalence of chronic diseases in older populations. In this study, the majority of patients were found in this age group. This occurs because, as people age, the gastric mucosa tends to become thinner. This natural aging process often leads to various health issues, particularly within the digestive system⁽¹¹⁾.

Table 1 shows that the majority of the participants were employees (48,6%). Employees also show a high prevalence of this condition. This group often has busy work schedules, which lead to poor eating habits and high stress. An irregular eating pattern can cause the body to become unbalanced, as meals are not consumed at the right time. Additionally, work-related stress can change stomach acid levels and affect how the digestive system functions. Together, these behavioral and biological factors explain why these specific groups are more likely to experience epigastric pain⁽¹²⁾.

Table 2 shows that the Visual Analogue Scale (VAS) scores decreased after the treatment. Before therapy, the pain scales were mostly between 4.5 and 7.4 cm, with an average score of 2.31. After therapy, the scores dropped significantly, with most subjects scoring between 0 and 4.4 cm and an average of 1.28. This results in an average reduction of 1.03 in the pain scale. These findings indicate that the therapy effectively reduced the intensity of epigastric pain for the participants.

Acupuncture at points CV 12 (Zhongwan), ST 36 (Zusanli), and PC 6 (Neiguan) stimulates the release of β -endorphins⁽⁶⁾. These natural chemicals enter the blood circulation to provide general and segmental pain relief. The mechanism works by controlling stomach movement (motility) and acid production, which helps improve symptoms of epigastric pain⁽⁷⁾.

Additionally, infrared therapy helps reduce the Visual Analogue Scale (VAS) scores. The heat from the infrared lamp relaxes muscle tension, improves blood flow, and calms the nervous system. Infrared also triggers the release of endorphins and serotonin, which act as natural painkillers and provide anti-inflammatory effects⁽¹³⁾. Together, acupuncture and infrared therapy create a powerful combination to reduce pain and inflammation.

Table 3 shows the results of the Wilcoxon test. The significance value is $p < 0.001$, which is less than 0.05. This indicates a significant difference in the epigastric pain scale before and after the treatment. Therefore, the therapy is proven to be effective in reducing pain levels for the participant. Acupuncture works through segmental pathways to provide therapeutic effects on the internal organs (viscera).

This treatment, also known as pain-relief therapy, is commonly used to reduce discomfort. The mechanism involves activating A-delta and C nerve fibers, which communicate with the spinal cord. This process increases the production of endogenous opioids (the body's natural painkillers) to reduce pain⁽¹⁴⁾.

The combination of points CV 12 (Zhongwan), ST 36 (Zusanli), and PC 6 (Neiguan) can regulate stomach movement (motility) and stop the production of too much stomach acid. Acupuncture is very beneficial for improving the digestive system because it has no side effects and can prevent symptoms from coming back⁽¹⁵⁾. The purpose of infrared heating is to reduce muscle pain and provide a relaxing, comfortable feeling⁽⁹⁾. Far-infrared radiation helps open up blood vessels, improves local blood flow (microcirculation), and boosts tissue metabolism⁽¹⁶⁾. When acupuncture is combined with infrared, the needle acts as a bridge to transfer heat and electromagnetic waves deeper into the body tissues. This combination is more effective at lowering pain levels than using acupuncture alone.

V. CONCLUSION

This study proves that combining acupuncture and infrared therapy works well to reduce stomach (epigastric) pain. Using infrared together with acupuncture points CV 12, ST 36, and PC 6 significantly lower pain scores. This shows that the treatment is very effective for managing digestive problems. More research with more participants and a longer treatment time is recommended. This will help confirm these results and show the long-term benefits of using both treatments together for better stomach health.

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