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Effect of Acupuncture Therapy Combination of Curcuma Xanthorrhiza Extract on Changes in Scale of Stomach Pain in Students of Campus 1 Polytechnic of the Ministry of Health Surakarta

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ABSTRACT

Stomach pain or dyspepsia is a digestive disorder characterized by epigastric pain, a feeling of fullness, nausea, vomiting, and frequent belching. Although often considered mild, this condition poses a risk of serious complications such as peptic ulcers, perforation, and even stomach cancer, which can significantly impact the quality of life. This study aims to determine the effect of acupuncture therapy combined with turmeric extract on changes in the stomach pain scale among students at Campus 1 Poltekkes Kemenkes Surakarta. The study employed a "Quasi-Experimental" design with a two-group pretest and posttest design. A total of 34 subjects were selected using purposive sampling and divided into two groups of 17 individuals each. The results of the Wilcoxon test showed a significance level of $p < 0.05$, indicating a significant effect on changes in the stomach pain scale within each group. Meanwhile, the Mann-Whitney test results between the two groups yielded a significance value of $p = 0.004$. Since the p -value < 0.05 , there is a meaningful difference between the two groups, which means that H_a is accepted and H_0 is rejected. This indicates that acupuncture therapy combined with turmeric extract has a significant effect on changes in the stomach pain scale among students at Campus 1 of the Ministry of Health Polytechnic of Surakarta.

I. INTRODUCTION

Dyspepsia is a collection of symptoms in the upper digestive tract characterized by epigastric pain, fullness, nausea, vomiting, and frequent belching⁽¹⁾. This condition can affect anyone and is generally triggered by an unhealthy lifestyle, such as irregular eating patterns,

consumption of spicy foods, coffee drinking habits, and stress^(2,3). Stomach pain is often considered minor, but it can develop into serious complications such as peptic ulcers, perforation, and even stomach cancer, which can reduce quality of life⁽⁴⁾.

The prevalence of functional digestive disorders reaches 40% of the world's population⁽⁵⁾, with figures in Asia ranging

from 8–30%⁽⁶⁾. In Indonesia, the prevalence reaches 40–50%⁽⁷⁾, while in Central Java it reaches 57%⁽⁸⁾. A preliminary study by researchers at Campus 1 of the Surakarta Ministry of Health Polytechnic found that 55 students had experienced stomach pain, predominantly among late adolescents with irregular eating patterns and high stress levels.

Conventional management of stomach pain usually involves antacids, which only provide temporary relief and are therefore not recommended for long-term use⁽⁹⁾. Thus, complementary therapies such as acupuncture and herbal medicine are an option. Acupuncture has been shown to reduce pain and improve digestive function^(10,11). The use of herbs such as temulawak (*Curcuma xanthorrhiza* Roxb.) is known to have a protective effect on the gastric mucosa through its curcuminoid content, which can inhibit prostaglandin formation and increase mucus secretion⁽¹²⁾.

Based on the high prevalence of stomach pain and the limitations of conventional therapy, this study was conducted to determine the effect of acupuncture therapy combined with temulawak extract on changes in the stomach pain scale among students at Campus 1 of the Ministry of Health Polytechnic of Surakarta".

II. METHODS

This study was conducted at the Acupuncture Department of the Surakarta Ministry of Health Polytechnic from October 2024 to April 2025 using a quasi-experimental design with a two-group pretest and posttest design. There were 34 subjects divided into two groups of 17 people each. Group I received acupuncture therapy at the CV 12 (Zhongwan), ST 36 (Zusanli), PC 6 (Neiguan), and LV 3 (Taichong) points in combination with temulawak extract. In contrast, group II received acupuncture therapy at points CV 12 (Zhongwan), ST 36 (Zusanli), PC 6

(Neiguan), and LV 3 (Taichong) without a combination of temulawak extract.

The research subjects were determined using purposive sampling techniques according to the following inclusion criteria: (1) Students majoring in Acupuncture, Nursing, and Speech Therapy at the Surakarta Ministry of Health Polytechnic who experienced stomach pain; (2) Males and females aged 17–25 years; (3) Willing to sign an informed consent form; (4) Having a stomach pain scale of 4–6; (5) Not currently taking medication; and (6) Willing to undergo eight therapy sessions and consume temulawak extract. Exclusion criteria included: (1) Withdrawal from the study; (2) Undergoing treatment other than acupuncture; (3) Experiencing serious health problems; and (4) Not following the therapy schedule (drop out).

Pain scale changes were measured using NRS. Therapy was performed 8 times with a frequency of twice a week. Curcuma extract was administered according to the acupuncture therapy schedule at a dose of twice a day, morning and night. Data analysis was performed using the Shapiro-Wilk test to determine normality and the Levene Test to test homogeneity. The test results showed that the data were not normally distributed and were not homogeneous, so hypothesis testing was performed using the Wilcoxon test to determine the significant effect on paired data and the Mann-Whitney test to see significant differences between two groups of unpaired data.

III. RESULT

Data collection was conducted in February 2025. The characteristics of the research subjects included gender, syndrome differentiation, and pain scale before and after therapy. The majority of subjects were female, numbering 18 people. The most common syndrome differentiation was spleen-stomach Qi deficiency, with 13 people. The most common pain scale before therapy was 4, with 15 people, while after therapy, the

most common pain scale was 1, with 10 people.

Table 1. Characteristics of Research Subjects

Characteristics	Group 1		Group 2	
	N	%	N	%
Gender				
Man	2	11.8	1	5.9
Woman	15	88.2	16	94.1
Syndrome Differentiation				
Qi of the heart attacks the stomach	4	23.5	5	29.4
Damp heat in the spleen and stomach	1	5.9	4	23.5
Deficiency of spleen and stomach Qi	7	41.2	6	35.3
Cold invasion in the stomach	2	11.8	-	-
Food retention	3	17.6	2	11.8
Pain Scale Before Therapy				
4	6	35.3	9	52.9
5	6	35.3	2	11.8
6	5	29.4	6	35.3
Pain Scale After Therapy				
0	6	35.3	1	5.9
1	7	41.2	3	17.6
2	2	11.8	6	35.3
3	1	5.9	5	29.4
4	1	5.9	2	11.8

The Wilcoxon test results for assessing the difference in pain scale before and after therapy. In group I, a p-value of $p < 0.001$ was obtained, and in group II, a p-value of $p < 0.001$ was also obtained ($p < 0.050$). These results indicate a significant decrease in pain scale after therapy in each group.

Table 2. Wilcoxon test

Group	N	Z	Sig.(2-tailed)
I	17	-3.77	<0.001
II	17	-3.71	<0.001

The Mann-Whitney test results for comparing differences between groups.

The p-value obtained was 0.004 ($p < 0.050$), indicating a significant difference between the two groups. These results suggest that the combination therapy of acupuncture and temulawak extract is more effective in reducing gastric pain scores than acupuncture alone.

Table 3. Mann-Whitney test

Group	N	Mean	Sig.(2-tailed)
I	17	12.71	0.004
II	17	22.29	

IV. DISCUSSION

The results of this study indicate that acupuncture therapy at the CV 12 Zhongwan, ST 36 Zusanli, PC 6 Neiguan, and LV 3 Taichong points and the combination of acupuncture therapy with temulawak extract administration have a significant effect on reducing stomach pain. The Mann-Whitney test results show that the combination of acupuncture and temulawak extract administration has a greater impact than acupuncture alone, with a p-value of 0.004 (<0.050). These findings support the research hypothesis that the combination of acupuncture and temulawak extract affects changes in the stomach pain scale among students at Campus 1 of the Ministry of Health Polytechnic of Surakarta.

The effectiveness of the acupuncture points used can be explained by both modern mechanisms and Traditional Chinese Medicine (TCM) approaches. Needling the ST 36 Zusanli point plays a role in controlling systemic inflammation by increasing the activity of aromatic amino acid decarboxylase L and dopamine production in the adrenal medulla⁽¹³⁾. This point, together with CV 12 Zhongwan, has been proven to harmonize spleen-stomach function, thereby stabilizing the digestive system⁽¹⁴⁾. PC 6 Neiguan functions to facilitate Qi movement and reduce abnormal stomach Qi, while LV 3 Taichong helps stimulate the

flow of liver Qi, which is often stagnant due to stress factors, thereby supporting spleen and stomach function⁽¹⁵⁾.

Acupuncture works in a multitarget manner by regulating hormones, neurotransmitters, and autonomic nerve activity⁽¹⁶⁾. Research by Zhang et al. shows that 20 minutes of acupuncture can increase gastric motility through vagal activation, suppress sympathetic activity, reduce visceral hypersensitivity, and strengthen the gastric mucosa. This mechanism supports the results of this study, which found a decrease in pain intensity in both treatment groups⁽¹⁷⁾.

The combination of acupuncture and temulawak extract in this study showed more significant results than acupuncture alone. According to Rachmawati Amelia's (2018) research, the germa-crone content in temulawak functions as an analgesic, antioxidant, and anti-inflammatory that can suppress the effects of histamine⁽¹⁸⁾. In addition, the flavonoids in

temulawak stimulate the secretion of gastric mucosal prostaglandins and increase mucus secretion through the stimulation of the COX-1 enzyme⁽¹⁹⁾. This effect explains the protective role of temulawak against stomach pain. The results of this study are in line with Wayan Sugiarti's research, which proves that the combination of acupuncture therapy with temulawak herbs has a significant effect on reducing the scale of stomach pain with a p-value of 0.001⁽²⁰⁾.

V. CONCLUSION

This study shows that acupuncture therapy at the CV 12 Zhongwan, ST 36 Zusanli, PC 6 Neiguan, and LV 3 Taichong points, combined with temulawak extract, is effective in reducing stomach pain in students. These results confirm the potential of combining acupuncture and herbal therapy as a safe and beneficial integrative approach to treating dyspepsia.

REFERENCES

1. Zakiyah W, Eka Agustin A, Fauziah A, Sa'diyyah N, Ibnu Mukti G. Definisi, Penyebab, Klasifikasi, dan Terapi Sindrom Dispepsia. *J Heal Sains [Internet]* 2021;2(7):978–85.
2. Herman H, Lau SHA. Faktor Risiko Kejadian Dispepsia. *J Ilm Kesehat Sandi Husada [Internet]* 2020;12(2):1094–100. Available from: <https://akper-sandikarsa.e-journal.id/JIKSH/article/view/471>
3. Melina A, Nababan D, Rohana T. Faktor Risiko Terjadinya Sindroma Dispepsia Pada Pasien di Poli Klinik Penyakit Dalam RSUD Dr. Pirngadi Medan Tahun 2019. *Indones Nurs J Educ Clin [Internet]* 2023;3(1):31–45. Available from: <https://ejournal.penerbitjurnal.com/index.php/health/article/view/156>
4. Sidik AJ. Diagnosis dan Tata Laksana Dispepsia. *Cermin Dunia Kedokt [Internet]* 2024;51(3):140–4.
5. Sperber AD, Bangdiwala SI, Drossman DA, Ghoshal UC, Simren M, Tack J, et al. Worldwide Prevalence and Burden of Functional Gastrointestinal Disorders, Results of Rome Foundation Global Study. *Gastroenterology [Internet]* 2021;160(1):99–114.
6. Ghoshal UC, Singh R, Chang FY, Hou X, Wong BCY, Kachintorn U. Epidemiology of Uninvestigated and Functional Dyspepsia in Asia: Facts and Fiction. *J Neurogastroenterol Motil [Internet]* 2011;17(3):235–44.
7. Faridah U, Hartinah D, Farida N. Relationship of Diet with Frequency of Recurrence of Dyspepsia in Puskesmas Pamotan Rembang Regency. *14th University Res Colloquium [Internet]* 2021;495–501.

8. Bogra SR, Rokhayati E, Anniazi MAL. Korelasi antara Sarapan Pagi dengan Sindrom Dispepsia dan Aktivitas Fisik pada Anak Usia 10-12 tahun di Surakarta. *Plex Med J* [Internet] 2024;3(2):74–83.
9. Rahmaningrum PL, Saputra SA. Uji Mutu Fisik dan Penetapan Kadar Magnesium Hidroksida pada Tablet Kunyah Antasida dengan Nomor Batch Berbeda. *J Exp Clin Pharm* [Internet] 2023;3(2):72.
10. Zhu F, Yin S, Zhu X, Che D, Li Z, Zhong Y, et al. Acupuncture for Relieving Abdominal Pain and Distension in Acute Pancreatitis: A Systematic Review and Meta-Analysis. *Front Psychiatry* [Internet] 2021;12(December). Available from: <https://www.frontiersin.org/articles/10.3389/fpsy.2021.786401/full>
11. Guo Y, Wei W, Chen JDZ. Effects and Mechanisms of Acupuncture and Electroacupuncture for Functional Dyspepsia: A Systematic Review. *World J Gastroenterol* [Internet] 2020;26(19):2440–57.
12. Vikri M, Ghinan M, Ardhe V. Identifikasi Kadar Kurkumin pada Minuman Serbuk Berbahan Temulawak dengan Metode Spektrofotometri Uv-Vis. *Lambung Farm J Ilmu Kefarmasian* [Internet] 2022;3(2):191–6.
13. Yang NN, Tan CX, Lin LL, Su XT, Li YJ, Qi LY, et al. Potential Mechanisms of Acupuncture for Functional Dyspepsia Based on Pathophysiology. *Front Neurosci* [Internet] 2022;15(January):1–14.
14. Dong X, Yin T, Yu S, He Z, Chen Y, Ma P, et al. Neural Responses of Acupuncture for Treating Functional Dyspepsia: An fMRI Study. *Front Neurosci* [Internet] 2022;16:1–9.
15. Chen Y qiao, Wu J li, Wei N xuan, Qiu M ting, Guo Z, Shao X mei, et al. Analysis on Acupoints Selection and Combination for Functional Dyspepsia: Data Mining of Randomized Controlled Trials. *World J Acupunct - Moxibustion* [Internet] 2024;34(1):40–53. Available from: <https://doi.org/10.1016/j.wjam.2023.06.001>
16. Chen T, Zhang WW, Chu YX, Wang YQ. Acupuncture for Pain Management: Molecular Mechanisms of Action. *Am J Chin Med* [Internet] 2020;48(04):793–811.
17. Zhang J, Chen T, Wen Y, Siah KTH, Tang X. Insights and Future Prospects of Traditional Chinese Medicine in the Treatment of Functional Dyspepsia. *Phytomedicine* [Internet] 2024;127:1–9.
18. Amelia R. Penanganan Gastritis dengan Pengobatan Akupunktur Menggunakan Titik Zhongwan (CV 12) dan Ekstrak Temulawak Kunyit [Internet]. 2018; Available from: https://repository.unair.ac.id/120714/%0Ahttps://repository.unair.ac.id/120714/1/kk_FKPT_05_12_Ame_p.pdf
19. Syamsudin RAMR, Perdana F, Suci Mutiaz F, Galuh V, Putri Ayu Rina A, Dwi Cahyani N, et al. Temulawak Plant (*Curcuma xanthorrhiza* Roxb) as a Traditional Medicine. *J Ilm Farm Bahari* [Internet] 2019;10(1):51–65.
20. Sugiarti W. Efektivitas Terapi Akupunktur dan Herbal Temulawak terhadap Derajat Nyeri Lambung di Praktek Mandiri Akupunktur Wayan Cimahi. 2023.