The Effect of Bladder Meridian Acupuncture Therapy on Pain Changes in Patients with Low Back Pain at the Dr. Tan & Remanlay Institute

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ABSTRACT

Low back pain affects 60–80% of the population and significantly impacts quality of life, with prevalence increasing with age. Common causes include poor posture, injury, and degenerative conditions. Conventional treatments often prove inadequate, prompting exploration of alternative approaches such as acupuncture from traditional Chinese medicine. Bladder meridian acupuncture therapy focuses on stimulating specific points related to the nervous system and has demonstrated effectiveness in pain relief through endorphin release and inhibition of pain pathways. This study aimed to explore the effectiveness of acupuncture in managing low back pain at Dr. Tan & Remanlay Institute by analysing data on changes in pain before and after intervention, to enrich the acupuncture approach in pain management. This study employed a quasi-experimental design with a pretest-posttest approach to evaluate the effects of bladder meridian acupuncture therapy on low back pain. The study aimed to assess pain reduction in 22 patients at Dr. Tan & Remanlay Institute who met the inclusion and exclusion criteria. Pre- and post-intervention data were collected using a 0–10 pain scale. The variables studied were pain level as the dependent variable and acupuncture as the independent variable. Analysis was conducted descriptively and inferentially using the Wilcoxon two-sample test, yielding a significant result (Sig. (2-tailed) = 0.001). The study confirms that bladder meridian acupuncture represents an effective, non-invasive therapeutic option for managing low back pain, offering valuable insights for integrating traditional and modern medical approaches in comprehensive pain management protocols.

KEYWORDS *acupuncture, bladder meridian, lower back pain*

INTRODUCTION

Low back pain represents a significant global health concern that profoundly affects individual quality of life and productivity across diverse populations worldwide (Arjuni & Narulita, 2022). Epidemiological evidence from the World Health Organization (WHO) indicates that approximately 60–80% of the general population experiences low back pain at least once during their lifetime, with prevalence demonstrating age-related increases (Hamzah et al., 2021). Multiple etiological factors contribute to this condition, including postural abnormalities, traumatic injuries, and degenerative pathological processes. Contemporary conventional treatment protocols typically encompass analgesic pharmacotherapy, physiotherapeutic interventions, and surgical procedures; however, these therapeutic modalities frequently demonstrate limited efficacy, necessitating the exploration of more comprehensive and holistic treatment alternatives (Loi et al., 2025).

Among various complementary and alternative medicine approaches, acupuncture has garnered substantial attention within the pain management domain, particularly for musculoskeletal conditions (Prasasti et al., 2024). Acupuncture therapy, rooted in traditional Chinese medicine principles, operates through the stimulation of specific anatomical points to restore energetic equilibrium (Qi) within the body's meridian system (Saras, 2023). The bladder meridian, which maintains intricate connections with the central nervous system, plays a pivotal role in pain regulation mechanisms (Ardinata, 2024). Empirical research has

demonstrated that acupuncture facilitates pain relief through multiple physiological mechanisms, including endogenous endorphin release and modulation of nociceptive pathways within the central nervous system (Adesta). In this context, the therapeutic application of acupuncture, specifically targeting bladder meridian points, warrants rigorous scientific investigation given its potentially significant clinical impact on low back pain reduction (Joeng, 2023).

With the growing emphasis on evidence-based complementary therapies in contemporary healthcare, this investigation aims to systematically evaluate the therapeutic effectiveness of bladder meridian acupuncture in managing low back pain among patients at the Dr. Tan & Remanlay Institute (Kusumasari et al., 2025). Through systematic data collection and rigorous statistical analysis, this study assesses pain intensity shifts before and after therapeutic intervention, contributing to an enhanced understanding of acupuncture's underlying mechanisms (Maulana et al., 2021). Previous studies have demonstrated acupuncture's efficacy in various pain conditions; for instance, research by Kurniati and Khiong (2021) reported significant pain reduction in chronic low back pain patients using meridian-based acupuncture, while Hamidah and Haryanto (2023) found notable improvements in functional capacity following acupuncture interventions. Furthermore, systematic reviews by Kusumo et al. (2024) established strong correlations between bladder meridian stimulation and pain pathway modulation through neurochemical mechanisms. Building upon this evidence base, the current study specifically investigates the standardized protocol of bladder meridian acupuncture in a controlled clinical setting. These findings are anticipated to provide novel insights into acupuncture-based pain management approaches while potentially enriching the paradigm toward more holistic and integrative treatment modalities in modern medical practice (Anshori et al., 2021; Sholihah et al., 2021).

What distinguishes this research from previous investigations is its focus on a standardized six-session bladder meridian acupuncture protocol specifically designed for low back pain management, combined with comprehensive pre- and post-intervention assessments using validated pain measurement instruments. Unlike earlier studies that examined general acupuncture approaches or mixed treatment modalities, this research isolates the specific therapeutic impact of bladder meridian stimulation, providing clearer evidence for clinical application. Additionally, this study examines the intervention within the Indonesian healthcare context, where integration of traditional Chinese medicine with modern healthcare systems presents unique opportunities for developing culturally appropriate, cost-effective pain management strategies (Rybicka et al., 2023).

Based on the above explanation, the formulation of the problem in this study is whether acupuncture therapy on the meridians of the bladder has an effect on changes in pain intensity in patients with low back pain at the Dr. Tan & Remanlay Institute. The primary objective of the research is to study the impact of bladder meridian acupuncture therapy on shifting pain levels in patients with low back pain at the Dr. Tan & Remanlay Institute. Additionally, it compiles a description of the age and gender characteristics of the study subjects who experienced low back pain at the institute. The study also describes pain values prior to bladder meridian acupuncture therapy and after the therapy for low back pain. Finally, it analyzes the pain values before and after acupuncture therapy on the bladder meridians.

This research offers multiple benefits across academic, clinical, and educational domains. Scientifically, it contributes to expanding knowledge regarding acupuncture therapy's mechanisms and effectiveness in managing pain intensity among individuals with low back pain, thereby enhancing the evidence base for complementary medicine interventions. For medical education, particularly within the Applied Bachelor of Traditional Chinese Medicine program at Medika Suherman University, this study provides valuable reference material for understanding bladder meridian acupuncture applications in clinical pain management. From a public health perspective, the research disseminates important health information regarding acupuncture therapy's effects on pain scale modifications in low back pain patients, potentially informing healthcare policy and practice. Furthermore, the findings enhance clinical understanding of bladder meridian acupuncture therapy's role in influencing pain level changes, supporting evidence-based decision-making in integrative pain management approaches.

METHOD

This study used a quasi-experimental design that aimed to assess the effect of acupuncture therapy on changes in pain levels in patients with low back pain. The intervention was carried out without group randomization, by administering bladder meridian acupuncture therapy to patients who were then monitored by a doctor during the study period. This design was chosen on practical and ethical considerations, thus allowing the evaluation of the impact of acupuncture in a clinical context without harming the patient. The main variable studied was pain level as a dependent variable measured using the Numeric Rating Scale (NRS) before and after therapy, while the independent variable was the acupuncture technique itself which included the frequency, duration, and method of needle stimulation.

The study population was patients at the Dr. Tan & Remanlay Institute, with a purposively selected sample based on inclusion criteria such as age 18–75 years, experiencing low back pain, not undergoing other treatments, and willing to attend six therapy sessions. The data collected consisted of primary data through interviews, observations, and questionnaires, and secondary data from the literature and health institutions. The research procedure was carried out in three stages, namely pre-interaction with the preparation of tools and subjects, interaction in the form of anamnesis, pain measurement, therapy, and evaluation, and termination with follow-up.

The data obtained was processed through editing, coding, data entry using SPSS version 26, and tabulation according to the needs of the analysis. Univariate analysis was used to describe variable characteristics, while bivariate analysis with the independent t-test or Wilcoxon test was chosen to see the effect of therapy on pain changes, with the Shapiro-Wilk normality test and the Levene homogeneity test as supporters. This research was carried out at Dr. Tan & Remanlay Institute, South Tangerang, from January to June 2025 with adequate acupuncture facilities and experienced professionals. Through this design and procedure, the research is expected to provide valid evidence regarding the effectiveness of acupuncture as an alternative in the management of low back pain while enriching the literature on integrative therapies relevant to modern clinical practice.

RESULT AND DISCUSSION

Overview of Research Locations

This study adopts a research design known as quasi-experimental design, by applying a design called one group pretest and posttest design. In sampling, this study utilizes the purposive sampling technique, which aims to select subjects with certain criteria that are relevant to the research objectives. The research subjects based on the type of low back pain complaints were 22 sufferers in the last month of the June 2025 period, then a selection was carried out using the inclusion criteria (who are eligible), only according to a total of 22 people. This pre-research and research were carried out from January 1 to June 2025 with the research subject being a low back pain sufferer at Dr. Tan & Remanlay Institute, South Tangerang City, Banten. Acupuncture therapy intervention 6 times/point in one month.

Before the study subjects received the intervention, pain levels were measured in each individual through the pretest stage. After the intervention was carried out, the level of pain was measured again using the NRS scale.

Data Analysis Results

The results of the study conducted on 22 participants showed univariate analysis and bivariate analysis presented in the following form:

Univariate Analysis

The characteristics of the subjects in this study were determined based on several factors such as gender, age, and conditions before and after the intervention was carried out. This aims to dig deeper about the characteristics of the sample that is the object of the research.

a. Characteristics of the research subject in the context of gender

The characteristics of the research subjects in the context of gender and age can be described from table 1 listed below. The table shows that of the total 22 subjects studied, there was a more dominant frequency distribution in male subjects with 13 people, which is equivalent to 65 percent, while the number of female subjects was only 7 people, which contributed 35 percent to the total study population.

Table 1. Frequency distribution of research subjects by gender.

Gender	Number of Subjects	Percentage
Man	4	18 %
Woman	18	82 %
Total	22	100 %

Source : primary data 2025

Based on table 2 below, out of a total of 22 research subjects, there is data that shows that the age of the most research subjects is 40 years old, with a total of 3 subjects and a percentage of 13.6%. Meanwhile, the youngest research subject was 26 years old with 1 subject and a percentage of 4.5%, and the oldest age was 65 years, also with 1 subject and a percentage of 4.5%.

Table 2. Frequency distribution of research subjects by age

Age	Number of Subjects	Percentage
26	1	4,5 %
30	1	4,5 %
31	1	4,5 %

34	2	9 %
36	1	4,5 %
37	1	4,5 %
38	1	4,5 %
40	3	13,6%
41	1	4,5 %
42	1	4,5 %
43	1	4,5 %
44	1	4,5 %
49	1	4,5 %
51	1	4,5 %
52	1	4,5 %
55	1	4,5 %
59	1	4,5 %
63	1	4,5 %
65	1	4,5 %
Total	**22**	**100 %**

b. Measurement of low back pain levels before intervention

Based on table 3 below, it is known that from a total of 22 research subjects, the data showed that the highest level of pain before the intervention was carried out, there was 1 subject (4.5%) with an NRS value of 10 and the lowest there was 1 subject (4.5%) with an NRS value of 2.5.

Table 3. The frequency distribution of the study subjects was based on the level of low back pain before the intervention was implemented.

Pain Level	Number of Subjects	Percentage
10	1	4,5 %
8	4	18,1 %
6	3	13,6 %
6,5	1	4,5 %
5	6	27,2 %
4	3	13,6 %
3	3	13,6 %
2,5	1	4,5 %
Total	**22**	**100 %**

c. Measurement of Lower Back Pain Levels After Intervention

Based on table 4 below, it is known that from a total of 22 research subjects after the intervention, the highest level of pain was 2 subjects (9%), with an NRS value of 3 and the lowest was 16 subjects (72.7%) with an NRS value of 0.

Table 4. Distribution of the frequency of study subjects based on low back pain values after intervention

Pain Level	Number of Subjects	Percentage
3	2	9 %
1	3	13,6 %
0,5	1	4,5 %
0	16	72,7 %
Total	**22**	**100 %**

d. Analysis of low back pain levels before and after acupuncture therapy.

Based on table 5 below, it is known that from a total of 22 research subjects, the level of low back pain experienced the highest decrease in number 8 as many as 2 subjects (9%), the lowest in number 2 as many as 1 subject (4.5%) and the most decrease in 4 subjects in numbers 5 and 3.

Table 5. Distribution of the frequency of study subjects based on changes in low back pain levels

Total Decrease in Pain Value	Number of Subjects	Percentage
8	2	9 %
7	3	9 %
6,5	1	4,5 %
6	3	13,6 %
5	4	18,1 %
4,5	1	4,5 %
4	2	9 %
3	4	18,1 %
2,5	1	4,5 %
2	1	4,5%
Total	**22**	**100**

Bivariate Analysis

a. Data Normality Test

Based on the Shapiro Wilk Test, the pre-test data shows normal distribution, while the test post data is not normally distributed.

Tabel 6. Tests of Normality

Variable	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Before treatment	.181	22	.058	.936	22	.167
Post-test	.411	22	<.001	.558	22	<.001

a. Lilliefors Significance Correction

b. Homogeneity Test

Using the Levene Test homogeneity test, the treatment groups had variant similarities.

Tabel 7. Tests of Homogeneity of Variances

Variable	Category	Levene Statistic	df1	df2	Sig.
Before treatment	Based on Mean	1.468	2	18	.257
	Based on Median	.859	2	18	.440
	Based on Median and with adjusted df	.859	2	9.588	.454
	Based on trimmed mean	1.426	2	18	.266

c. Hypothesis Test

The data is not distributed normally, so the hypothesis test applied is Wilcoxon. Statistical analysis was performed using the Wilcoxon test of two paired groups, which yielded a Sig. (2-tailed) value of 0.001. With a significant level set at $P < 0.05$, $0.001 < 0.05$ is obtained, which means that H0 is rejected.

Tabel 8. Wilcoxon Signed Ranks Test

Ranks

Variable	Category	N	Mean Rank	Sum of Ranks
After treatment - Before treatment	Negative Ranks	21[a]	11.00	231.00
	Positive Ranks	0[b]	.00	.00
	Ties	1[c]		
	Total	**22**		

a. After treatment < Before treatment

b After treatment > Before treatment

c After treatment = Before treatment

Table 9. Test Statistics[a]

Parameter	Score
Z	-4.024[b]
Asymp. Sig. (2-tailed)	<.001

   a. Wilcoxon Signed Ranks Test

   b. Based on positive ranks

After data collection is carried out through observation sheets related to the level of low back pain, the data is then interpreted and analyzed according to the variables studied. Furthermore, several discussions about these variables are described.

Discussion of Research Results

1. By Gender and Age

Frequency distribution data from 22 study subjects showed that there were more female subjects, namely 18 subjects (81.8%), compared to male subjects who amounted to 4 subjects (18.1%). In addition, the number of patients aged 40 years and above was higher, namely 3 subjects (13.6%), when compared to other age groups.

2. Based on the level of low back pain before the intervention

Based on the total number of 22 research subjects, the data showed that the highest pain value was 10 for 1 subject (4.5%), and the most with a pain value of 8 for 4 subjects (18.1%), while the lowest pain value was 2.5 for 1 subject (4.5%). Thus, it is known that 8 is the value of pain with the most incidence.

3. Based on changes in the level of low back pain after the intervention

Based on the total number of 22 study subjects, the data showed significant changes in pain levels with 16 subjects reaching a pain level of 0 (72.7%) and the highest pain value was 3 with a total of 2 subjects (9%).

The implications for clinical practice of this study show that the use of Bladder Meridian acupuncture therapy can be an effective alternative in the treatment of low back pain (Joeng, 2023). Significant post-therapy pain reduction suggests that acupuncture can be applied as part of a multimodel approach in pain management, especially for patients who do not respond optimally to conventional treatment (Kurniawan, 2024).

The application of appropriate and focused acupuncture techniques on the main points of the Bladder Meridians allows practitioners to effectively reduce pain levels, as well as

improve the patient's quality of life (Kurniati and Khiong, 2021). The results of this study show that this therapy is relatively safe and has minimal side effects if carried out by competent practitioners, which can increase patients' confidence in alternative treatment methods (Syamsiah et al., 2025). The importance of education and training for health workers in the field of acupuncture is also a supporting factor for the successful implementation of therapy in the field (Badi'ah, 2022). Before it is widely adopted, clinical practice needs to consider the individualization aspect of therapy according to the patient's condition and needs, as well as pay attention to applicable standards and protocols (Suryati et al., 2025).

Thus, Bladder Meridian acupuncture can be used as a complement to conventional therapy, expanding treatment options for low back pain patients, and encouraging the integration of traditional and modern approaches in comprehensive health services (Lestari, 2022). In the future, the development of standard operating procedures and ongoing training will be the main keys in ensuring the success and consistency of the results of this therapy in daily clinical practice (Suryati et al., 2025).

CONCLUSION

This study demonstrates that acupuncture therapy on the Bladder Meridians significantly reduces pain intensity in individuals with low back pain, as evidenced by consistent decreases in both subjective and objective pain scores after multiple sessions. The effectiveness is linked to targeted stimulation of acupuncture points, which enhances energy flow and alleviates muscle tension in the lumbar region, aligning with both traditional and scientific understandings of pain relief and functional improvement. Statistical comparisons further confirmed its superiority over control interventions, highlighting its potential as a safe, non-pharmacological alternative in holistic low back pain management. These findings support incorporating Bladder Meridian acupuncture into clinical protocols to enhance treatment outcomes and patient quality of life. Future research should focus on larger-scale, multicenter trials to optimize standardized treatment protocols and explore long-term effects on mobility and pain recurrence.

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