

The Effect of Tuina Anfa Therapy at Shenshu Point on Reducing Low Back Pain Intensity in Supra Group Office Workers with Cold-Dampness Syndrome

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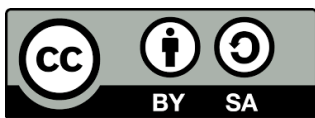
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tuina anfa, shenshu point, low back pain, cold-dampness syndrome, office workers

ABSTRACT

Low back pain is commonly experienced by office workers, with a prevalence of 72% among individuals with sitting durations of ≥ 4 hours/day. In Traditional Chinese Medicine (TCM), this condition is associated with the pattern of Cold-Dampness Syndrome, which is characterized by the obstruction of meridians. Tuina Anfa therapy at the Shenshu acupoint has been reported to reduce pain intensity; however, research involving office worker populations remains limited. This study aimed to determine the effect of Tuina Anfa therapy at the Shenshu acupoint on reducing low back pain intensity among office workers with Cold-Dampness Syndrome. This study employed a quasi-experimental design with an interrupted time-series approach involving 20 office workers at Supra Group who experienced low back pain associated with Cold-Dampness Syndrome. Participants were selected using purposive sampling based on the following criteria: age 21–45 years, chronic low back pain lasting >12 weeks, and a Numeric Rating Scale (NRS) score ≥ 4 . The Tuina Anfa intervention at the Shenshu acupoint was administered twice weekly for 4 weeks, resulting in a total of 8 sessions. A total of 20 respondents participated, with 55% aged 21–30 years, 55% being male, and all participants working in a sitting position for ≥ 4 hours/day. The mean NRS score decreased from 4.45 (moderate pain) before the intervention to 1.15 (mild pain) after 8 sessions, representing a mean reduction of 3.30 points (74.2%). The Wilcoxon Signed-Rank Test showed a p-value of 0.000 ($p < 0.05$), indicating a statistically significant difference between pain intensity scores before and after the intervention. All respondents (100%) experienced a decrease in NRS scores, and no adverse effects were reported. Tuina Anfa therapy at the Shenshu acupoint demonstrated potential effectiveness in reducing low back pain intensity among office workers with Cold-Dampness Syndrome ($p = 0.000$) and may be considered a safe non-pharmacological intervention. Further studies with larger samples and controlled designs are recommended to confirm these findings.



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INTRODUCTION

Low back pain (LBP) has become one of the most prevalent musculoskeletal disorders and represents a significant global public health challenge (Bouziri et al., 2023; Chen et al., 2022; de Luca et al., 2022; Shokri et al., 2023; Wang et al., 2022). The increasing prevalence

of sedentary lifestyles, prolonged occupational sitting, and reduced physical activity has contributed to the growing burden of LBP across various populations, particularly among working-age adults. According to the World Health Organization (WHO), musculoskeletal disorders affect approximately 1.71 billion people worldwide, with low back pain being one of the leading causes of disability and reduced quality of life (Alhashim et al., 2025; Eyo, 2025; Kadyamadare, 2022; Riaz & Sheraz, 2026). The Global Burden of Disease Study reported that low back pain affected approximately 619 million people globally in 2020 and is projected to increase substantially by 2050 due to population growth and aging trends (WHO, 2022; GBD, 2023). These conditions indicate that LBP is not only an individual health concern but also an occupational and socioeconomic issue requiring effective prevention and management strategies.

The burden of low back pain is also significant in Asian countries, including Indonesia, where occupational risk factors continue to increase due to changing work patterns (Ferreira et al., 2023; Harahap et al., 2025; Kadir et al., 2026; Setyawan et al., 2026; Situmeang et al., 2023). Recent evidence indicates that prolonged sitting, poor ergonomic posture, and repetitive occupational activities are among the primary contributing factors to LBP among office workers. In Indonesia, low back pain has been reported as a common occupational health problem, with clinical observations indicating a considerable proportion of workers experiencing musculoskeletal complaints. Furthermore, research among office workers in Jakarta demonstrated that approximately 72% of employees experienced low back pain, particularly those with sitting durations exceeding four hours per day (Tanjung et al., 2023). These findings highlight that office workers represent a vulnerable population requiring appropriate and sustainable interventions (Bälter et al., 2024; Horvat et al., 2024; Kersten et al., 2023; Ullberg et al., 2026).

Office workers are particularly susceptible to low back pain because their occupational activities are frequently dominated by prolonged static sitting positions. Extended sitting may increase mechanical loading on lumbar structures, reduce muscle activity, and contribute to musculoskeletal imbalance. Previous studies have identified several risk factors associated with LBP among office workers, including non-ergonomic sitting posture, long working duration, inappropriate workstation design, age, sex, and body mass index (Guesteva et al., 2021). Although ergonomic interventions and physical exercise programs have been widely recommended, many workers continue to experience chronic pain due to limited adherence, accessibility barriers, and the need for complementary therapeutic approaches.

From the perspective of Traditional Chinese Medicine (TCM), low back pain accompanied by symptoms such as heaviness, stiffness, cold sensation, and worsening pain under cold or damp conditions is classified as Cold-Dampness Syndrome. This condition is traditionally described as involving obstruction of meridian circulation caused by cold and damp pathogenic factors, resulting in impaired Qi and blood circulation in the lumbar region. The World Health Organization has included Cold-Dampness lumbago within international terminology standards for Traditional Chinese Medicine, indicating its recognition within TCM classification systems and the need for further scientific investigation (WHO, 2022). Therefore, exploring therapeutic approaches based on TCM principles may provide additional evidence for managing specific characteristics of low back pain.

Tuina therapy is a traditional therapeutic modality that has received increasing attention as a non-pharmacological intervention for musculoskeletal disorders, including chronic low back pain. Previous studies have demonstrated that Tuina therapy may reduce pain intensity, improve physical function, and support recovery outcomes. A systematic review and meta-analysis by Yang et al. (2023) reported beneficial effects of Tuina therapy for patients with chronic nonspecific low back pain, while Huang et al. (2026) further supported these findings through an analysis of multiple clinical studies. These findings suggest that Tuina therapy has potential therapeutic benefits; however, the mechanisms and effectiveness of specific Tuina techniques applied to particular acupoints require further investigation.

One specific approach within Tuina therapy is the application of Anfa manipulation at the Shenshu acupoint (BL23), which is traditionally associated with kidney function regulation and lumbar health. Previous studies have investigated acupuncture points and traditional interventions for low back pain; however, most research has focused on acupuncture, general Tuina therapy, or populations with nonspecific chronic low back pain. Research specifically examining Tuina Anfa stimulation at the Shenshu acupoint among office workers with Cold-Dampness Syndrome remains limited. Therefore, empirical evidence regarding the effectiveness of this specific intervention in occupational populations remains insufficient.

The existing research gap indicates the need for studies integrating occupational health perspectives with Traditional Chinese Medicine approaches. Previous studies have primarily evaluated Tuina therapy among general populations with chronic low back pain, while limited attention has been given to office workers experiencing LBP related to prolonged sitting exposure and specific Cold-Dampness Syndrome characteristics. Furthermore, previous investigations have rarely applied repeated measurement approaches to observe changes in pain intensity across multiple therapy sessions. Addressing this gap is important because office workers represent a growing population exposed to persistent ergonomic risks, and effective non-pharmacological interventions may contribute to improved workplace health management.

This study is important because chronic low back pain among office workers may negatively affect productivity, work performance, and overall quality of life. Pharmacological treatments may provide temporary symptom relief but may also have limitations associated with long-term use. Therefore, safe, practical, and evidence-based complementary therapies are needed to support occupational health strategies. Tuina Anfa therapy at the Shenshu acupoint offers a potential complementary approach because it combines manual stimulation techniques with traditional therapeutic principles while minimizing potential adverse effects. Investigating its effectiveness may provide valuable evidence for developing complementary strategies for occupational low back pain management.

The novelty of this research lies in examining the specific effect of Tuina Anfa therapy at the Shenshu acupoint among office workers with clinically identified Cold-Dampness Syndrome using an interrupted time-series quasi-experimental design. Unlike previous studies that generally evaluate Tuina as a broad intervention, this research focuses on a specific therapeutic technique, acupoint, and occupational population. The repeated measurement

approach also enables observation of changes in pain intensity throughout the intervention period, providing more detailed evidence regarding treatment responses.

Based on these considerations, this study aimed to determine the effect of Tuina Anfa therapy at the Shenshu acupoint on reducing low back pain intensity among Supra Group office workers with Cold-Dampness Syndrome. The findings are expected to contribute to the development of evidence-based complementary medicine, particularly within occupational health settings. Practically, this research may provide healthcare practitioners and workplace health managers with additional information regarding non-pharmacological interventions for managing low back pain among office workers. Academically, this study contributes to expanding scientific evidence regarding the application of Traditional Chinese Medicine approaches in modern musculoskeletal health management.

METHOD

Type of Research

This study employed an interrupted time-series (ITS) quasi-experimental design to evaluate changes in the dependent variable before and after the intervention. Repeated measurements were conducted within a single group of participants during the pre-intervention and post-intervention periods. According to Van Leeuwen et al. (2024), the interrupted time-series design is increasingly used to assess intervention effects in real-world settings. In this study, the ITS approach was applied to examine changes in pain intensity following the intervention. The time-series design used in this study was illustrated as follows:

R : All study respondents received the intervention. O1: Pretest before treatment

$R \rightarrow O_1 \rightarrow X_1 \rightarrow O_2 \rightarrow O_3 \rightarrow O_4 \text{ etc.}$
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Table 2. Study Design (Van Leeuwen et al., 2024)

O2, O3, O4: Posttest 1, 2, and 4 after treatment, based on the passage of time

X1: Intervention according to protocol

This study used a quasi-experimental design with a time series approach (interrupted time series design). This design was chosen to observe repeated changes in pain intensity before and after Tuina therapy intervention within the same group. The study design can be illustrated as follows:

$R \rightarrow O_1 \rightarrow X \rightarrow O_2 \rightarrow O_3 \rightarrow O_4 \rightarrow O_5$

Notes:

1. R = Study respondents who met the inclusion criteria.
2. O₁ = Initial measurement (pre-test) of pain intensity before the intervention.
3. X = Administration of the Tuina therapy intervention according to protocol.
4. O₂, O₃, O₄, O₅ = Repeated measurements (post-test) of pain intensity after the intervention, at session 2, session 4, session 6, and follow-up

Population and Sample

The population in this study was all office workers at Supra Group, Gajah Mada Office Tower, 3rd Floor A, Gambir, Central Jakarta, totalling 20 people, who experienced low back pain due to prolonged sitting activity with a diagnosis of Cold-Dampness syndrome (Shi Han Zheng).

According to (Firdaus et al., 2023), a sample is the part of the population that serves as the actual source of data in a study. In other words, a sample is a portion of the population that is expected to represent the entire population. Sampling techniques are generally grouped into two categories: probability sampling and non-probability sampling. Purposive sampling falls under non-probability sampling, in which the researcher selects participants based on specific criteria appropriate to the study's objectives.

This study used a purposive sampling technique with inclusion criteria set by the researcher, namely office workers at Supra Group, Gajah Mada Office Tower, 3rd Floor A, Gambir, Central Jakarta, who experienced low back pain with a diagnosis of Cold-Dampness syndrome (Shi Han Zheng). Samples in this study were selected using a purposive sampling technique according to the following criteria:

Inclusion criteria:

- a. Office workers aged 21–45 years.
- b. Experiencing chronic low back pain (>12 weeks) with characteristics of Cold-Dampness syndrome.
- c. Willing to attend all 8 therapy and measurement sessions.
- d. Pain intensity score ≥ 4 on the Numeric Rating Scale (NRS).
- e. Working duration of more than 4 hours.

Exclusion criteria:

- a. History of spinal trauma, herniated nucleus pulposus, or lumbar surgery.
- b. Currently pregnant or breastfeeding.
- c. Suffering from a systemic disease (diabetes, cancer, heart disorder).
- d. Currently undergoing other therapy for low back pain.

Study Variables

1. Independent Variable:
Tuina therapy at the Shenshu acupoint
2. Dependent Variable
Reduction in low back pain intensity.

Data Collection Procedure

The data collection procedure in this study was carried out through several structured stages to ensure the accuracy and validity of the data obtained. The study was conducted at the Supra Group office, Gajah Mada Office Tower, 3rd Floor A, Gambir, Central Jakarta, from June to July 2026.

1. Selection and Screening of Respondents

The researcher identified prospective respondents through coordination with the HR department of Supra Group. Selection was based on the established inclusion criteria: office workers aged 21–45 years, experiencing chronic low back pain (>12 weeks) with characteristics of Cold-Dampness syndrome, a pain intensity score ≥ 4 on the Numeric Rating Scale (NRS), a working duration of more than 4 hours per day, and willingness

to attend all therapy and measurement sessions. Prospective respondents with a history of spinal trauma, herniated nucleus pulposus, lumbar surgery, pregnancy or breastfeeding, systemic disease, or currently undergoing other therapy for low back pain were excluded from the study (exclusion criteria).

2. Explanation of the Study and Signing of Informed Consent

The researcher provided oral and written explanations regarding the study's purpose, benefits, therapy procedures, intervention duration (8 sessions over 4 weeks), and respondents' rights, including the right to withdraw at any time without penalty. After understanding all the information, respondents were asked to sign a consent form (informed consent) as evidence of voluntary willingness to participate.

3. Initial Measurement (Pre-test)

Before the intervention was administered, the researcher measured initial pain intensity using the Numeric Rating Scale (NRS) instrument, with a score range of 0–10. This measurement was carried out to determine respondents' baseline pain level. In addition, an interview and initial physical examination were conducted to confirm the diagnosis of Cold-Dampness syndrome, characterised by cold, heavy, stiff pain that worsens in cold/damp weather, improves with warm compresses, a pale tongue with a white coating, and a deep, slow pulse.

Type of Data

The type of data used in this study is quantitative data, i.e. data in numerical form that can be measured objectively. Quantitative data were obtained from measurements of low back pain intensity using the Numeric Rating Scale (NRS) instrument, with a score range of 0 to 10, where a score of 0 indicates no pain, scores of 1–3 are categorised as mild pain, scores of 4–6 as moderate pain, scores of 7–9 as severe pain, and a score of 10 as very severe pain.

Measurements were taken twice: before the intervention (pre-test) and after the intervention (post-test) at each therapy session (O1 to O8), producing numerical data that allowed for statistical analysis to observe changes in pain intensity. In addition to primary data in the form of NRS scores, this study also collected respondents' demographic data, including age (in years) and sex (male/female), which are categorical data.

Age data were collected in the form of numerical values in years (numerical/ratio data), while sex data were collected in categorical form (nominal data). All collected data were primary data obtained directly through interviews, physical examinations, and measurements using observation sheets and a Cold-Dampness syndrome diagnostic questionnaire developed by the researcher.

This primary data included NRS scores before and after the intervention, Cold-Dampness syndrome scores, respondents' demographic characteristics, and respondents' compliance data during the 8 sessions of Tuina Anfa therapy at the Shenshu acupoint. This type of quantitative data was chosen because it allows the researcher to conduct both parametric and non-parametric statistical tests to test the study hypothesis, namely to determine whether there is a significant effect of Tuina Anfa therapy at the Shenshu acupoint on the reduction of low back pain intensity in office workers with Cold-Dampness syndrome.

The quantitative data produced also allowed the researcher to calculate means, standard deviations, and percentage reductions in pain, providing an objective and measurable picture of the effectiveness of the intervention given. Thus, the type of data used in this study fully

supports the achievement of the study's objective, namely to measure and analyse the effect of Tuina Anfa therapy on the reduction of low back pain intensity in a scientific, evidence-based manner.

Data Source

The data sources in this study were obtained from two main categories, namely primary data and secondary data, both of which were used to support the completeness and accuracy of the study results.

1. Primary Data

Primary data were obtained directly from the study respondents, namely 20 office workers of Supra Group located at Gajah Mada Office Tower, 3rd Floor A, Gambir, Central Jakarta, who met the inclusion criteria and agreed to participate in the study by signing an informed consent form. Primary data were collected through a series of procedures including structured interviews, physical examinations, and direct measurements using the study instruments. The information obtained from the primary data source included:

- a. Respondent demographic characteristic data, including name, age, sex, address, and occupation, collected through an initial interview before the intervention.
- b. Low back pain intensity data, obtained through measurement using the Numeric Rating Scale (NRS) with a score range of 0–10. Measurements were taken repeatedly, 8 times in total, consisting of 1 initial measurement (pre-test) before the intervention and 7 measurements (post-test) after each therapy session, plus a follow-up measurement at session 8.
- c. Cold-Dampness syndrome diagnostic data, obtained through a diagnostic questionnaire completed based on interviews and examination of clinical signs, including cold and heavy pain, muscle stiffness, pain that worsens in cold/damp weather, pain that improves with warm compresses, and tongue and pulse examination.
- d. Respondent compliance data, recorded on a compliance sheet to ensure that all respondents attended the 8 sessions of Tuina Anfa therapy at the Shenshu acupoint in accordance with the established protocol.

2. Secondary Data

Secondary data sources in this study were obtained from literature studies in the form of national and international scientific journals, textbooks, and official documents relevant to the study topic. Secondary data were used to strengthen the theoretical foundation, support the analysis of study results, and serve as a comparison against the findings obtained.

Research Instruments
A research instrument is a tool used to collect data in this study. The instruments used were developed based on a review of theory and adapted to the study's objectives, to measure the effect of Tuina Anfa therapy at the Shenshu acupoint on the reduction of low back pain intensity in office workers with Cold-Dampness syndrome. The research instruments used included:

- a. Respondent Identity and Characteristics Questionnaire:
This sheet was used to collect respondents' demographic data, including name,

age, sex, address, and occupation. This data was obtained through a direct interview at the initial stage before the intervention was administered.

- b. **Numeric Rating Scale:** The main measurement tool in this study was the Numeric Rating Scale (NRS), used to measure low back pain intensity. The NRS has a score range of 0 to 10, where a score of 0 means no pain, scores of 1–3 are categorised as mild pain, scores of 4–6 as moderate pain, scores of 7–9 as severe pain, and a score of 10 as very severe pain. This instrument was chosen because it is easily understood by patients and has been proven valid and reliable for measuring pain intensity.
- c. **Observation Sheet:** This sheet was used to systematically record the NRS score for each respondent at each measurement. The observation sheet contained columns for respondent name, age, sex, pre-test score (O1), and post-test score at each therapy session (O2 to O8), facilitating the researcher's documentation and data analysis.
- d. **Respondent Compliance Sheet:** This instrument was used to record respondents' attendance and compliance in completing the full series of 8 Tuina Anfa therapy sessions over 4 weeks. The compliance sheet was completed each time a respondent attended a therapy session, with a checkmark (✓) in the column for the session completed.
- e. **Standard Operating Procedure (SOP) for Tuina Anfa Therapy:** The SOP was used as a standard guide for the researcher in administering the Tuina Anfa therapy intervention at the Shenshu acupoint, to ensure consistency and standardisation of the treatment procedure for all respondents. The SOP covered stages of patient preparation, therapy position, the pressing technique (Anfa) at the Shenshu acupoint for a duration of 3–5 minutes, additional manipulation of the buttock and calf areas, and a muscle-relaxation procedure following the therapy.

Data Processing

Data processing in this study was carried out through a series of systematic stages to convert raw data obtained from the field into data ready for statistical analysis. The data processing procedure included the following steps:

1. **Data Editing:** The initial stage of data processing was checking and editing all collected observation sheets and questionnaires. The researcher checked the completeness of each respondent's data, ensured no data was missed or left blank, and checked the consistency of answers and recorded NRS scores. If incomplete data were found, the researcher immediately reconfirmed with the respondent to complete the missing data.
2. **Data Coding:** Once the data was declared complete, the researcher performed coding to facilitate the analysis process. Respondent characteristic data such as sex were coded (1 = male, 2 = female), while NRS scores were recorded as numerical values according to the measurement results. Coding was also performed on the Cold-Dampness syndrome diagnostic data, with codes (1 = yes, 2 = no) for each indicator measured.
3. **Data Entry:** The coded data was then entered into the statistical data processing program, the Statistical Package for the Social Sciences (SPSS) version 32.0.0.0(134). Data entry was carried out carefully to avoid input errors that could affect the analysis results. Each variable was entered into the appropriate column, including respondent identity variables,

pre-test and post-test NRS scores at each session, and Cold-Dampness syndrome diagnostic scores.

4. Data Cleaning: After all data was entered, the researcher performed a data cleaning process to ensure there were no significant input errors or outliers. The researcher re-examined the data distribution and made corrections if errors were found. This process also included checking for extreme values that might have appeared and re-verifying against the original data source.
5. Statistical Analysis: Once the data was tabulated, statistical analysis was performed using the Wilcoxon Signed Rank Test with the assistance of SPSS software. This test was chosen because the NRS score data are ordinal in scale and constitute paired data from the same group (a paired sample). The analysis results were then interpreted by comparing the obtained p-value with the significance level ($\alpha = 0.05$). If the p-value was < 0.05 , the Alternative Hypothesis (H_a) was accepted, meaning there was a significant effect of Tuina Anfa therapy at the Shenshu acupoint on the reduction of low back pain intensity.
6. Data Presentation: The final results of data processing were presented in the form of tables and descriptive narratives covering mean values, standard deviations, minimum and maximum values, and the percentage reduction in NRS scores. This data presentation was intended to help readers understand the study results comprehensively.

Data Analysis

Data analysis in this study was carried out to test the effect of Tuina Anfa therapy at the Shenshu acupoint on the reduction of low back pain intensity in office workers with Cold-Dampness syndrome. Data analysis consisted of two types: univariate analysis and bivariate analysis, each with its own purpose and method according to the type of data obtained.

1. Univariate Analysis

Univariate analysis aims to describe the characteristics of each variable studied individually, without relating variables to one another. In this study, univariate analysis was used to describe the frequency distribution and percentage of respondent data, including demographic characteristics (age and sex) and pain scale before the intervention. The results of the univariate analysis are presented in frequency distribution tables to help readers see a general overview of the study respondents. Data are presented in three main tables: a table of subject characteristics by age, a table of subject characteristics by sex, and a table of pain scale characteristics based on NRS measurements.

2. Bivariate Analysis

Bivariate analysis aims to test the relationship or difference between two variables, namely the independent variable (Tuina Anfa therapy at the Shenshu acupoint) and the dependent variable (low back pain intensity). In this study, bivariate analysis was used to test the difference in low back pain levels before and after the administration of Tuina Anfa therapy intervention at the Shenshu acupoint within the same group of respondents.

RESULTS AND DISCUSSION

Results of Data Analysis

Descriptive Analysis of Cold-Dampness Syndrome Scoring (Before and After Intervention)

Based on the results of the Cold-Dampness syndrome diagnostic questionnaire completed by the 20 Supra Group office worker respondents before the intervention, it was found that most respondents showed high scores (4–5) on several key indicators of Cold-Dampness syndrome.

These included: (1) low back pain that feels cold and heavy; (2) muscle stiffness in the lower back area; (3) pain that worsens in cold or damp weather; (4) pain that improves with the application of heat or a warm compress; and (5) a sensation of cold radiating to the lower extremities. These results indicate that almost all respondents experienced a fairly dominant Cold-Dampness syndrome, which, from the perspective of Traditional Chinese Medicine (TCM), is one of the causes of low back pain due to meridian obstruction by cold and damp pathogens. This finding is consistent with the statement by (Du et al., 2024) that the Cold pathogen has a congealing nature and obstructs the flow of Qi and Xue, thereby causing pain and stiffness in the lower back.

After the administration of Tuina Anfa therapy at the Shenshu acupoint for 8 sessions over 4 weeks according to the study protocol, there was a significant decrease in scores across all physical indicators of Cold-Dampness syndrome. Most respondents who had previously scored 4–6 experienced a decrease to a score of 2–3 on each indicator measured. This shows that Tuina Anfa therapy is effective in expelling cold and damp pathogens, smoothing the circulation of Qi and Xue, and warming the meridians that were previously obstructed. This result is supported by a study by (Huang et al., 2026), which demonstrated that Tuina therapy is significantly effective in reducing pain intensity and improving physical function in patients with chronic nonspecific low back pain.

Results of Univariate Analysis (Frequency Distribution)

Univariate analysis aims to describe the main characteristics of pain-level data collected before and after Tuina Anfa therapy intervention at the Shenshu acupoint. This study used the Numeric Rating Scale (NRS) to assess low back pain intensity, with a value range of 0 to 10. The data analysed came from 20 respondents who met the inclusion criteria and completed the entire therapy procedure satisfactorily.

Table 1. Subject Characteristics Based on Age

Age	Frequency	Percentage
21	4	20
22	1	5
23	1	5
24	3	15
25	1	5
26	1	5
32	2	10
39	1	5
40	3	15

Age	Frequency	Percentage
44	3	15
Total	20	100

Source: Primary data processed by the authors (2026)

Based on Table 2, it is known that subjects aged 21–30 years accounted for 55%, and subjects aged 31 to 45 years accounted for 45%.

Table 2. Subject Characteristics Based on Sex

Sex	Frequency	Percentage
Male	11	50
Female	9	45
Total	20	100

Source: Primary data processed by the authors (2026)

Based on Table 3, subjects of male sex accounted for 55% and female subjects for 45%.

Table 3. Pain Characteristics Based on NRS

Pain Scale	Frequency	Percentage
No Pain		
Mild		
Moderate	18	90
Severe	2	10
Very Severe		
Total	20	100

Source: Primary data processed by the authors (2026)

Based on Table 3 above, it is known that, in terms of pain scale characteristics, 90% of respondents experienced moderate pain and 10% experienced severe pain. This is also consistent with the (WHO, 2022) definition that cold-dampness lumbago is a condition of pain and heaviness in the lumbar region accompanied by a sensation of cold, occurring when cold-damp pathogens obstruct the meridians in the lumbar area.

Results of Bivariate Analysis

Bivariate analysis aims to test the difference in low back pain levels before and after the administration of Tuina Anfa therapy intervention at the Shenshu acupoint. This study used the Numeric Rating Scale (NRS) to assess low back pain intensity, with a value range of 0 to 10. The data analysed came from 20 respondents who met the inclusion criteria and completed the entire therapy procedure satisfactorily.

Table 4. Distribution of NRS Scores Before and After Intervention

No.	Name	PreTest	PostTest
1	NC	5	2
2	AJ	5	3

No.	Name	PreTest	PostTest
3	LA	5	2
4	JM	6	3
5	AL	6	3
6	IP	5	3
7	US	7	3
8	RY	6	3
9	IN	5	2
10	FR	5	2
11	SM	6	3
12	LL	6	2
13	PD	6	2
14	AI	6	3
15	SR	5	2
16	IK	6	2
17	RT	6	2
18	RS	5	2
19	RF	6	3
20	SS	7	2

Source: Primary data processed by the authors (2026)

Based on Table 4, the mean NRS score before the intervention was 5.7 and decreased to 2.4 after the intervention, a mean reduction of 3.3 points. All 20 respondents showed a decrease in NRS score, with 11 respondents obtaining a score of 2 and 9 respondents obtaining a score of 3 at post-test. These results show that the intervention given was effective in producing a clinically meaningful reduction in respondents' pain levels.

Based on the data in the table, it is known that the number of respondents (N) at both measurement time points was 20. Before the intervention, the mean pain intensity was 4.45 with a standard deviation of 1.10, indicating that most respondents experienced moderate-level pain with fairly diverse data variation. After the intervention was given, the mean pain decreased drastically to 1.15 with a standard deviation of 0.67, indicating that respondents' pain had generally decreased to a mild level and that the data had become more homogeneous (smaller spread). The mean reduction of 3.30 points (or approximately 74.2%) represents a very large and clinically meaningful change. A smaller standard error of the mean after the intervention (0.15) compared to before (0.25) also reinforces that the post-test mean estimate is more precise. Overall, this data provides strong evidence that the intervention given was highly effective in reducing pain intensity, with a consistent effect across respondents.

In addition to the decrease in mean value from 4.45 to 1.15 (N=20), analysis of the pretest–posttest score difference shows that all respondents (100%) experienced a decrease in pain intensity. The mean reduction difference was 3.30 points (with a standard deviation of the difference yet to be calculated), with a reduction range of between 1 point (minimum) and 4 points (maximum). No respondents were found to have an increase or stagnation in pain score, indicating that the therapy provided a consistent and comprehensive positive response across the entire sample. This finding reinforces the previous result that Tuina Anfa therapy at the

Shenshu acupoint is effective as a non-pharmacological intervention, particularly in the population of office workers with low back pain complaints due to Cold-Dampness syndrome, as its effect is not only statistically significant but also clinically stable across individuals.

Hypothesis Testing

Hypothesis testing in this study aimed to determine whether there was a significant difference between NRS scores before and after the administration of Tuina Anfa therapy intervention at the Shenshu acupoint on the reduction of low back pain intensity. The statistical hypotheses proposed were as follows:

- a. H_0 (Null Hypothesis): There is no significant difference in NRS scores before and after Tuina Anfa therapy intervention at the Shenshu acupoint among respondents with low back pain.
- b. H_a (Alternative Hypothesis): There is a significant difference in NRS scores before and after Tuina Anfa therapy intervention at the Shenshu acupoint among respondents with low back pain.

Table 5. Hypothesis Testing Results

No.	Name	Age	O1	O2	O3	O4	O5	O6	O7	O8	Percentage
1	NC	40	5	4	4	3	3	2	2	2	60%
2	AJ	39	5	5	4	4	3	3	3	3	40%
3	LA	24	5	4	3	2	2	2	2	2	60%
4	JM	24	6	4	4	3	3	3	3	3	33,30%
5	AL	25	6	5	5	5	3	3	3	3	50%
6	IP	22	5	5	5	4	4	4	3	3	40%
7	US	40	7	5	5	5	5	4	4	3	57,10%
8	RY	32	6	6	5	4	4	3	3	3	50%
9	IN	21	5	4	4	4	4	3	3	2	60%
10	FR	21	5	5	3	3	3	3	2	2	60%
11	SM	44	6	5	5	5	4	4	3	3	66,70%
12	LL	44	6	6	4	4	3	3	3	2	66,70%
13	PD	26	6	5	4	4	4	3	2	2	66,70%
14	AI	23	6	6	6	5	4	3	3	3	66,70%
15	SR	24	5	4	4	3	3	3	3	2	60%
16	IK	21	6	4	4	4	4	3	2	2	66,70%
17	RT	40	6	6	6	5	4	4	3	2	66,70%
18	RS	44	5	5	4	4	3	3	3	2	60%
19	RF	32	6	5	3	4	3	3	3	3	66,70%
20	SS	44	7	6	6	5	5	4	3	2	71,40%

Source: Primary data processed by the authors (2026)

Based on Table 5, from data obtained from 20 respondents, the mean NRS score decreased from 5.7 to 2.4 (a mean reduction of 3.3 points, or 58.3%). All respondents (100%) showed a decrease in NRS score, so descriptively, the alternative hypothesis (H_a), which states that there is a difference in NRS scores before and after the intervention, can be accepted. Further statistical testing was required to test the significance of this hypothesis.

Table 6. Wilcoxon Signed Rank Test Results

Variable	N	Mean Rank	Sum of Ranks
Negative Ranks	20	10.50	210.00
Positive Ranks	0	0.00	0.00
Ties	0		
Total	20		

Source: Primary data processed by the authors (2026)

Based on the results in Table 6 above, the Wilcoxon Signed-Rank Test on 20 respondents found that all respondents (100%) experienced a decrease in pain score after the intervention was given. The statistical test results showed a value of $Z = -3.923$ with a $p\text{-value} = 0.000$ ($p < 0.05$), meaning H_0 was rejected and H_1 was accepted. Thus, there was a significant effect of the intervention on the reduction of respondents' pain scale.

The interpretation of this result shows that there is a statistically significant difference in low back pain intensity between before and after the administration of Tuina Anfa therapy at the Shenshu acupoint. This indicates that Tuina Anfa therapy at the Shenshu acupoint is effective in reducing low back pain intensity in office workers with Cold-Dampness syndrome. Clinically, this reduction in pain is meaningful because it indicates an improvement in the patient's condition following the intervention.

This analysis result answers the study's research question, namely: "What is the effect of administering Tuina Anfa therapy at the Shenshu acupoint on the reduction of low back pain intensity in Supra Group office workers diagnosed with Cold-Dampness syndrome?" The answer is that there is a significant effect, with all subjects showing improvement. This effectiveness opens up opportunities for wider application in office community settings, households, and traditional health services alike. This simple intervention is not only effective but also safe and consistent with the principles of Traditional Chinese Medicine, which pay attention to the body's energy balance (Qi and Xue) and the expulsion of cold and damp pathogens.

CONCLUSION

This study demonstrated that Tuina Anfa therapy at the Shenshu acupoint showed potential as a non-pharmacological intervention for reducing low back pain intensity among office workers with Cold-Dampness Syndrome. The majority of respondents were aged 21–30 years (55%), with a slightly higher proportion of male participants (55%) than female participants (45%). Before the intervention, most respondents (90%) experienced moderate pain intensity, while the remaining 10% experienced severe pain.

After eight therapy sessions administered over four weeks, the mean Numeric Rating Scale (NRS) score decreased from 4.45 (moderate pain) to 1.15 (mild pain), representing a mean reduction of 3.30 points (74.2%). All respondents (100%) experienced a decrease in pain intensity, and no adverse effects were reported during the intervention period. Statistical analysis using the Wilcoxon Signed-Rank Test demonstrated a statistically significant difference between pre-intervention and post-intervention pain scores, with a $p\text{-value}$ of 0.000 ($p < 0.05$). These findings indicated that Tuina Anfa therapy at the Shenshu acupoint was associated with a significant reduction in low back pain intensity among the study participants.

Overall, these findings suggest that Tuina Anfa therapy at the Shenshu acupoint may serve as a safe and well-tolerated complementary approach for managing low back pain associated with Cold-Dampness Syndrome. The absence of reported adverse effects and the observed reduction in pain intensity indicate its potential as a non-pharmacological intervention for occupational low back pain among office workers. However, further studies involving larger sample sizes, control groups, and longer follow-up periods are required to confirm its long-term effectiveness and broader applicability.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the preparation and publication of this research report.

AUTHOR CONTRIBUTIONS

All authors contributed to the preparation of this research report. The first author (Dhika Saputra) was responsible for conceptualization, data collection, intervention implementation, data analysis, and drafting the initial manuscript. The second author (Muhammad Raihan Alfani, S.Tr.Akup., M.K.M.) contributed to conceptualization, supervision, methodological validation, and critical revision of the manuscript. The third author (Efa Yusfi Asrifa, S.Tr.Akup., M.K.M.) contributed to result validation, literature review, and critical revision of the manuscript. The fourth author (Dr. Hari Iskandar Kang, BCM., MCM.) contributed to clinical validation, literature review, and critical revision of the manuscript. All authors have read and approved the final version of the manuscript.

GENERATIVE AI STATEMENT

All authors declare that no generative artificial intelligence was used in the preparation of this manuscript. The entire content of the manuscript is the result of the authors' intellectual work and has been reviewed and approved by all authors.

REFERENCES

- Alhashim, A. A., Alyousof, A. A., Aldawsari, M. R., Alghannam, A. A., Alsayed, M. A., Alawadh, R. A., Alhussain, F. K., Alsuqair, H. M., AlJafari, L. A., & Alhumaidy, M. S. (2025). Work-related musculoskeletal disorders and their impact on quality of life: A comprehensive review. *Saudi Journal of Medicine and Pharmacy Sciences*, 11(5), 360–377.
- Bälter, K., King, A. C., Fritz, J., Tillander, A., & Ullberg, O. H. (2024). Sustainable lifestyle among office workers (the SOFIA study): Protocol for a cluster randomized controlled trial. *JMIR Research Protocols*, 13(1), e57777.
- Bouziri, H., Roquelaure, Y., Descatha, A., Dab, W., & Jean, K. (2023). Temporal and spatial distribution of musculoskeletal disorders from 1990 to 2019: A systematic analysis of the global burden of disease. *BMJ Public Health*, 1(1).
- Chen, S., Chen, M., Wu, X., Lin, S., Tao, C., Cao, H., Shao, Z., & Xiao, G. (2022). Global,

- regional and national burden of low back pain 1990–2019: A systematic analysis of the Global Burden of Disease study 2019. *Journal of Orthopaedic Translation*, 32, 49–58.
- de Luca, K., Briggs, A. M., French, S. D., Ferreira, M. L., Cross, M., Blyth, F., & March, L. (2022). Disability burden due to musculoskeletal conditions and low back pain in Australia: Findings from GBD 2019. *Chiropractic & Manual Therapies*, 30(1), 22.
- Du, Y., Liu, L., Niu, Z., Guan, X., & Zeng, B. (2024). Efficacy of TCM fumigation using dampness-and-cold-dispelling formula combined with methotrexate and leflunomide treating rheumatoid arthritis with cold-dampness Bi syndrome. *Clinical Complementary Medicine and Pharmacology*, 4(1), 100126. <https://doi.org/10.1016/j.ccmp.2023.100126>
- Eyo, D. F. (2025). *Health-related quality of life among industrial workers experiencing low back pain*. Lietuvos sporto universitetas.
- Ferreira, M. L., De Luca, K., Haile, L. M., Steinmetz, J. D., Culbreth, G. T., Cross, M., Kopec, J. A., Ferreira, P. H., Blyth, F. M., & Buchbinder, R. (2023). Global, regional, and national burden of low back pain, 1990–2020, its attributable risk factors, and projections to 2050: A systematic analysis of the Global Burden of Disease Study 2021. *The Lancet Rheumatology*, 5(6), e316–e329.
- Firdaus, J., M. Syahrani, J., Risnita, & Asrulla. (2023). Populasi dan sampling (kuantitatif), serta pemilihan informan kunci (kualitatif) dalam pendekatan praktis. *Jurnal Pendidikan Tambusai*, 7(3), 26320–26332.
- Guesteva, V. C., Anggraini, R. A., Maudi, L. P., Rahmadiani, P. Y., & Azzahra, N. (2021). Faktor-faktor penyebab kejadian low back pain pada pekerja kantoran: Systematic review. *Jurnal Ilmiah Kesehatan Masyarakat: Media Komunikasi Komunitas Kesehatan Masyarakat*, 13(3), 151–159. <https://doi.org/10.52022/jikm.v13i3.225>
- Harahap, N. M., Tualeka, A. R., & Jatmiko, H. A. (2025). The effect of occupational ergonomics on the risk of low back pain in workers in Indonesia. *Media Gizi Kesmas*, 14(2), 303–311.
- Horvat, M., Eržen, I., & Vrtnjak, D. (2024). Barriers and facilitators to medication adherence among the vulnerable elderly: A focus group study. *Healthcare*, 12(17), 1723.
- Huang, B., Xie, H., Duan, M., Chen, Y., Mu, P., Li, W., & Peng, L. (2026). Tuina for chronic non-specific low back pain: A systematic review and meta-analysis of randomized controlled trials. *Complementary Therapies in Medicine*, 99, 103381. <https://doi.org/10.1016/j.ctim.2026.103381>
- Kadir, A., Rampengan, D. D. C. H., Simanjuntak, A. V. H., Anggriani, T., Nauval, M. D., Adnan, M. I., Lastri, S., & Iqhrammullah, M. (2026). Economic burden of work-related low back pain in Indonesia before and during the COVID-19 era, 2019–2021: Analysis of Global Burden of Disease estimates. *ClinicoEconomics and Outcomes Research*, 575081.
- Kadyamadare, T. B. (2022). *Prevalence and risk factors of lower back pain (LBP) among construction workers in upstream oil and gas facilities in Oman, Middle East*. University of Johannesburg.
- Kersten, A., van Woerkom, M., Geuskens, G. A., & Blonk, R. W. B. (2023). Organisational policies and practices for the inclusion of vulnerable workers: A scoping review of the employer's perspective. *Journal of Occupational Rehabilitation*, 33(2), 245–266.
- Riaz, H., & Sheraz, S. (2026). Technological innovations in rehabilitation of musculoskeletal disabilities. In *Emerging technologies in the rehabilitation of physical disabilities* (pp. 47–71). Springer.
- Setyawan, H., Ismayenti, L., Qadrijati, I., Rinawati, S., Fajariyani, R., Atmojo, T. B., Wardani, T. L., Nugroho, H. D. E., Nurriwanti, N. S. S., & Kartika, A. P. (2026). Personal and occupational risk factors of low back pain in hospital administration workers. *Window of Health: Jurnal Kesehatan*, 61–73.

- Shokri, P., Zahmatyar, M., Falah Tafti, M., Fathy, M., Rezaei Tolzali, M., Ghaffari Jolfayi, A., Nejadghaderi, S. A., Sullman, M. J. M., Kolahi, A., & Safiri, S. (2023). Non-spinal low back pain: Global epidemiology, trends, and risk factors. *Health Science Reports*, 6(9), e1533.
- Situmeang, I. F., Ilmidin, N. S., & Sarasnita, N. (2023). The prevalence and risk factors of low back pain among healthcare workers in Asia. *Indonesian Journal of Occupational Safety and Health*, 12(3), 449–456.
- Tanjung, J. R., Hanarko, F. A., & Haryono, I. R. (2023). Hubungan posisi dan durasi duduk terhadap nyeri punggung bawah pada pekerja kantor di Jakarta: The relationship between sitting position and duration with low back pain in Jakarta's office workers. *Journal of Medicine*, 22(1), 61–68.
- Ullberg, O. H., Tillander, A., & Bälter, K. (2026). A sustainable lifestyle intervention among office workers: Cluster randomized pilot and feasibility study. *JMIR Formative Research*, 10(1), e82061.
- van Leeuwen, F. D., Lugtig, P., & Feskens, R. (2024). The performance of interrupted time series designs with a limited number of time points: Learning losses due to school closures during the COVID-19 pandemic. *PLoS ONE*, 19(8), 1–23. <https://doi.org/10.1371/journal.pone.0301301>
- Wang, L., Ye, H., Li, Z., Lu, C., Ye, J., Liao, M., & Chen, X. (2022). Epidemiological trends of low back pain at the global, regional, and national levels. *European Spine Journal*, 31(4), 953–962.
- World Health Organization. (2022). *WHO international standard terminologies on traditional Chinese medicine*. World Health Organization.
- Yang, J., Zhou, X., Ma, Q., Woods, J. T., Mohabbat, A. B., Do, A., Brault, J. S., Jensen, M. A., Shin, K. M., Shen, L., Zhao, C., Cheong, K. C. P., He, K., Guo, Y., Chen, Z., Tang, S., Tang, Y., Tan, C. I. C., Chen, J., & Bauer, B. A. (2023). Efficacy and safety of Tuina for chronic nonspecific low back pain: A PRISMA-compliant systematic review and meta-analysis. *Medicine*, 102(9), e33018. <https://doi.org/10.1097/MD.00000000000033018>