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An Observational Study To Asses The Role Of Acupuncture Points In Patients With Non-Specific Upper Limb Pain

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ABSTRACT

Background:Non-specific upper limb pain is a common musculoskeletal issue with multifactorial etiology, including overuse, posture, and soft tissue dysfunction. While conventional physiotherapy has been effective, the incorporation of acupuncture-based approaches—especially stimulation of traditional acupoints—has shown promise in enhancing pain relief and functional recovery.

Objective:To observe and evaluate the effectiveness of combining physiotherapy with acupressure (kneading of acupuncture points) in reducing pain and improving upper limb function in patients with non-specific upper limb pain.

Methods:An observational study was conducted on 30 participants presenting with chronic non-specific upper limb pain. The intervention consisted of standard physiotherapy integrated with kneading techniques targeting traditional acupuncture points. Pain intensity was measured using the Visual Analog Scale (VAS), and functional ability was assessed with the Quick DASH questionnaire, both pre- and post-intervention. Statistical analysis was performed using the paired t-test, with significance set at $p < 0.05$.

Results:Participants demonstrated a significant reduction in pain scores, with mean VAS decreasing from 5.79 ± 2.13 to 0.79 ± 0.77 ($p < 0.001$). Functional outcomes showed a dramatic improvement, with Quick DASH scores decreasing from 45.31 ± 15.71 to 3.81 ± 4.55 ($p < 0.001$). Improvements were consistent across age and gender categories, with no statistically significant differences between subgroups.

Conclusion:The integration of acupuncture point stimulation (acupressure) with physiotherapy significantly improves outcomes in patients with non-specific upper limb pain. This observational study supports the therapeutic value of incorporating acupressure into routine physiotherapeutic management to accelerate recovery, reduce disability, and enhance quality of life. Further large-scale prospective studies are recommended to validate these findings

Keywords: Upper limb pain, acupuncture points, acupressure, Quick DASH, VAS, observational study, physiotherapy

1. INTRODUCTION

Non-specific upper limb pain is a prevalent condition characterized by discomfort and dysfunction without a clearly defined pathology. It can affect individuals of various age groups and occupational backgrounds, often resulting from repetitive strain, overuse, postural imbalances, or minor injuries that do not show up on conventional imaging studies[i]. Such pain significantly impacts daily functioning and quality of life, especially when left untreated or inadequately managed. Despite various treatment strategies, many patients continue to experience symptoms due to the ambiguous etiology and chronic nature of the condition.

Acupressure—a non-invasive derivative of acupuncture—involves applying pressure to specific points along the body's meridians to stimulate healing responses. Unlike needle-based acupuncture, acupressure uses fingers or tools to activate points that correspond to internal organs and musculoskeletal structures. [ii]Evidence suggests that stimulation of these acupoints modulates neurochemical pathways, improving blood circulation, reducing inflammation, and releasing endogenous opioids that contribute to pain relief.[iii] However, most clinical trials focus on well-defined musculoskeletal disorders; few studies have evaluated its real-world effectiveness in non-specific presentations. This study, therefore, aims to observe the functional and symptomatic outcomes of acupressure therapy integrated with physiotherapy in individuals with non-specific upper limb pain.

2. BACKGROUND

Upper limb pain can result from a wide spectrum of conditions ranging from neurological, vascular, and musculoskeletal origins to systemic and psychosomatic factors.[iv] In many cases, especially those termed "non-specific," patients exhibit diffuse pain without diagnostic imaging or clinical tests identifying a clear source. Such pain often presents diagnostic and therapeutic challenges, requiring broader management strategies that consider both physical and energy-based approaches.

Traditional Chinese Medicine (TCM) describes meridians as energy pathways that traverse the body, linking internal organs to surface structures such as skin, muscles, and joints. Each meridian contains acupoints that, when stimulated, are believed to restore the flow of "Qi" and promote systemic healing.[v] Interestingly, anatomical dissections and fascia research (e.g., Thomas Myers' myofascial meridians) have shown strong parallels between these traditional pathways and actual myofascial and neurovascular structures.[vi] For instance, the Lung and Large Intestine meridians—running along the anterior upper limb—are implicated in shoulder and elbow dysfunctions and closely align with modern fascial trains and neural pathways.

Modern studies show that acupressure enhances the effects of conventional rehabilitation by improving range of motion, reducing muscle tightness, and alleviating chronic pain conditions such as myofascial pain syndrome and adhesive capsulitis.[vii][viii] A systematic review by Lee et al. found acupressure effective in reducing musculoskeletal pain across several joints, especially when combined with active exercises.[ix] However, most randomized controlled trials have focused on disease-specific conditions, leaving a gap in evidence for broader or non-specific upper limb pain cases.

This observational study attempts to address this gap by assessing real-world outcomes of patients with non-specific upper limb pain treated using acupuncture point stimulation integrated into conventional physiotherapy routines. It offers insights into the effectiveness of such integrative therapies in daily clinical settings, where patient conditions often do not fit neatly into diagnostic categories.

3. OBJECTIVES

Primary Objective:

To observe and assess the effectiveness of acupuncture point stimulation (acupressure) in reducing pain and improving upper limb function among individuals with non-specific upper limb pain.

Secondary Objectives:

To evaluate changes in functional disability using the Quick DASH score before and after acupressure-based intervention.

To assess changes in pain severity using the Visual Analog Scale (VAS) after the intervention.

To analyze the distribution of improvement across age groups and gender in relation to acupuncture point stimulation.

To identify the occupational and demographic patterns most associated with non-specific upper limb pain.

4. RESEARCH QUESTION

Does non-invasive acupuncture point stimulation (acupressure) lead to significant improvement in pain and functional status in patients with non-specific upper limb pain?

5. HYPOTHEIS

Null Hypothesis (H_0):

There is no significant improvement in pain and upper limb function following acupressure point stimulation in patients with non-specific upper limb pain.

Alternative Hypothesis (H_1):

There is a significant improvement in pain and upper limb function following acupressure point stimulation in patients with non-specific upper limb pain.

6. METHODOLOGY

Study Design: Observational, prospective cohort study.

Sampling Method: Purposive sampling.

Sample Size:30 participants diagnosed with non-specific upper limb pain.

Study Duration:12 months.

Inclusion Criteria:

Adults aged between 20 to 60 years.

Patients with non-specific upper limb pain for more than 3 months.

Willingness to participate and follow the observational protocol.

Exclusion Criteria:

Diagnosed neurological or vascular conditions affecting the upper limb.

Recent fractures or surgeries of the upper limb.

Any contraindication to manual therapy or acupressure.

Intervention:

Participants received acupressure therapy targeting classical acupuncture points related to upper limb meridians (e.g., LI4, LI11, PC6, LU5) applied by a trained practitioner using a non-invasive technique (rounded-tip tool).

Follow-up

Duration: Each participant was observed before and after the treatment cycle (approximately 4 weeks).

Outcome Measures:

Pain – assessed using the Visual Analog Scale (VAS).

Function – assessed using the Quick DASH (Disabilities of Arm, Shoulder, and Hand) score.

Data Analysis:

Statistical comparisons were done using paired t-tests.

Significance was set at $p < 0.05$.

Definition of study subjects: The study included 30 adults (both males and females) aged 21–60 years, experiencing non-specific upper limb pain for over 3 months. Participants had no identifiable pathology (e.g., fracture, infection, or neurological condition) and were selected through purposive sampling. All were capable of completing the VAS and Quick DASH assessments, making them suitable for evaluating the role of acupressure therapy in managing upper limb pain.

Intervention Protocol

Subjects Underwent conventional physiotherapy management including exercises for range of motion, strengthening, and postural correction and received kneading at identified acupuncture points related to the upper limb meridians (e.g., LI4, PC6, LU5).

7. PROCEDURE

Randomly selecting male and female upper limb patients as per inclusion criteria and exclusion criteria. Patient will be treated using traditional physiotherapy exercises and acupressure used in upper limb pain cases such as:

Scapular Stabilization exercises

Rowing

Exercise for triceps

Progressive resistance exercises

Stretching for pectoralis group

Treatment Protocol for Upper Limb Pain

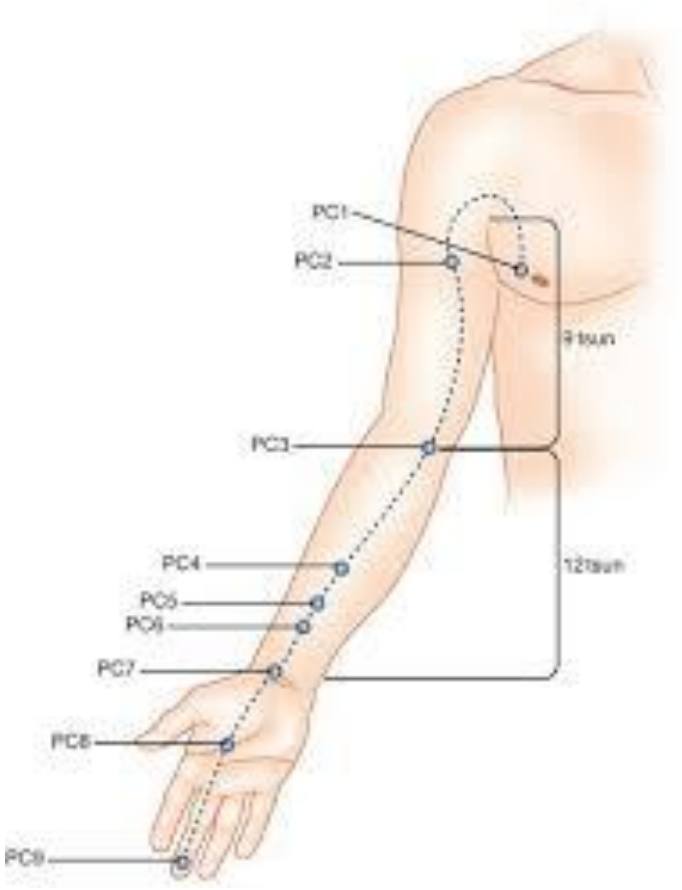
Patients underwent kneading techniques targeting specific meridians associated with upper limb discomfort, alongside prescribed exercises outlined for the exercise group.

1. Pericardium (Pc) Meridian

Pathway: Begins at the chest lateral to the nipple, ascends to the axillary fossa, and descends along the anterior-medial aspect of the arm to the cubital fossa. It continues between the Palmaris Longus and Flexor Carpi Radialis muscles, ending at the tip of the middle finger.

Clinical Use: Primarily targeted for arm pain and discomfort around the axillary fold.

Image:



2. Heart (Ht) Meridian

Pathway: Originates from the center of the axilla, runs downward along the anterior-medial side of the arm, and reaches the tip of the little finger.

Clinical Use: Effective for managing paresthesia and pain in the forearm and hand, elbow injuries, and stiffness of the neck.

ImaNon-specific upper limb pain is a prevalent condition characterized by discomfort and dysfunction without a clearly defined pathology. It can affect individuals of various age groups and occupational backgrounds, often resulting from repetitive strain, overuse, postural imbalances, or minor injuries that do not show up on conventional imaging studies[x]. Such pain significantly impacts daily functioning and quality of life, especially when left untreated or inadequately managed. Despite various treatment strategies, many patients continue to experience symptoms due to the ambiguous etiology and chronic nature of the condition.

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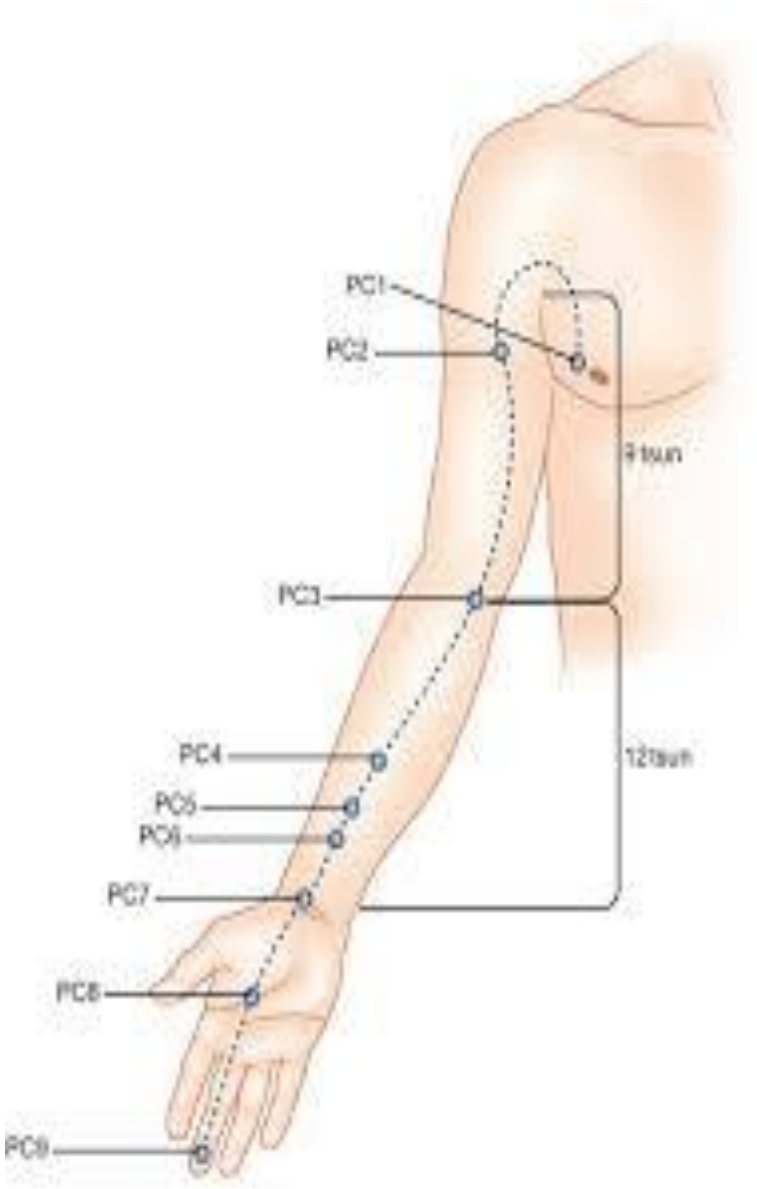

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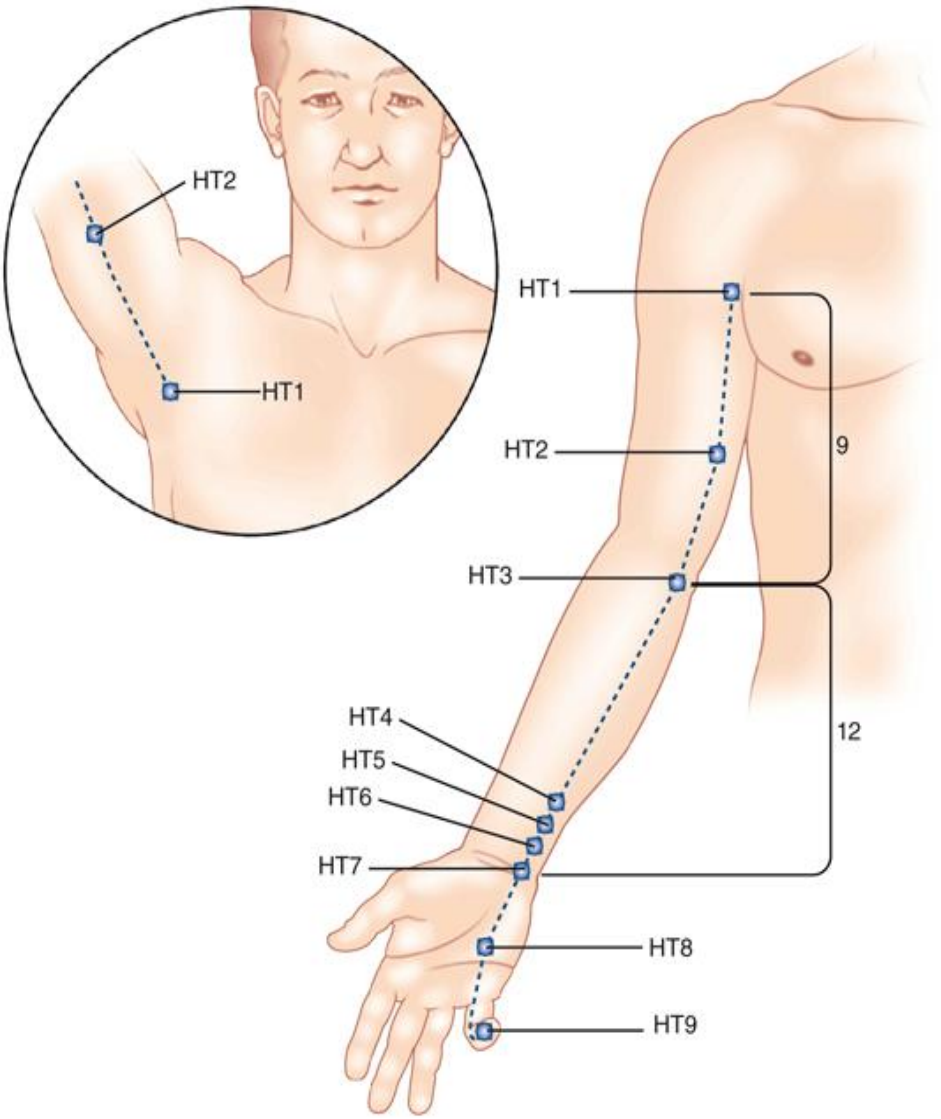

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3. Lung (LU) Meridian

Pathway: Starts from the lateral chest, travels through the anterior-medial side of the upper arm, crosses over at the cubital fossa, and continues down to the radial side of the wrist, ending at the tip of the thumb.

Clinical Use: Beneficial in treating facial paralysis, elbow and shoulder joint pain, and soft tissue injuries.

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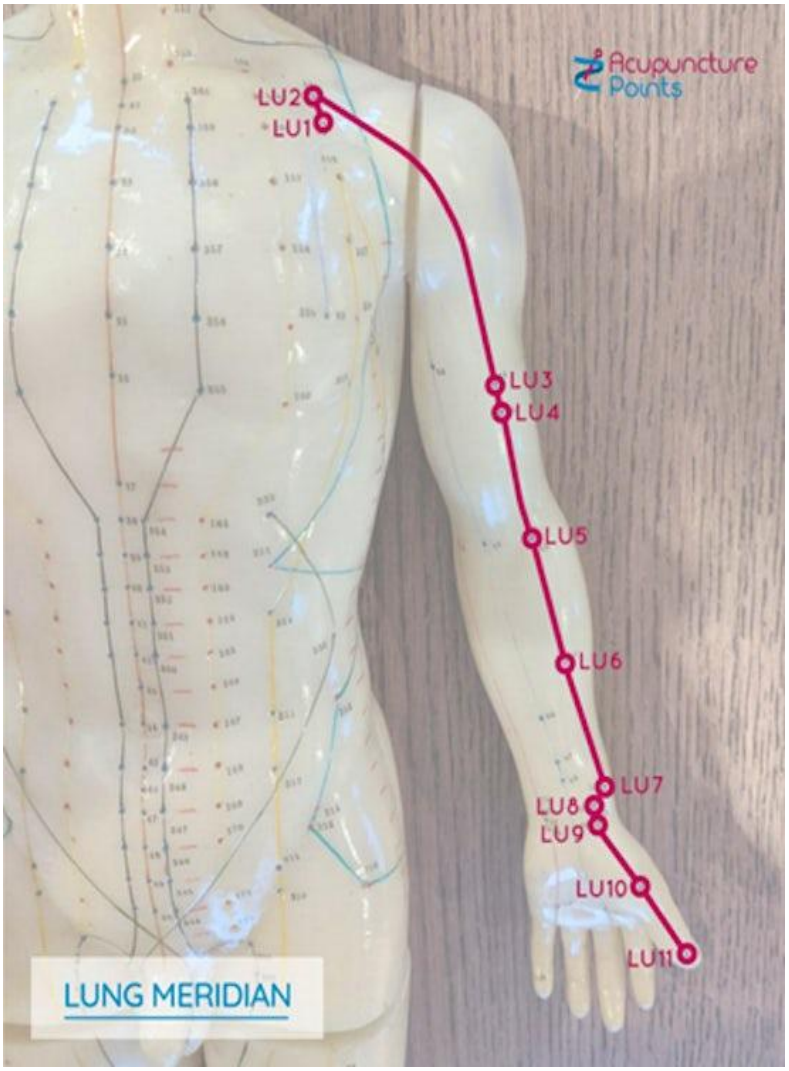


4. Triple Heater (TH) Meridian

Pathway: Emerges from the tip of the ring finger, travels along the posterior aspect of the arm, passes through the shoulder, and concludes at the outer end of the eyebrow.

Clinical Use: Used to alleviate facial pain, restricted shoulder movement, and pain in the arm or elbow.

Image:

5. Small Intestine (SI) Meridian

Pathway: Originates at the tip of the little finger, moves upward along the ulnar side of the arm to the scapula, zigzags across it, and ends at the front of the ear.

Clinical Use: Helpful for improving motor function in the arm and easing lumbar or cervical spine stiffness and pain.

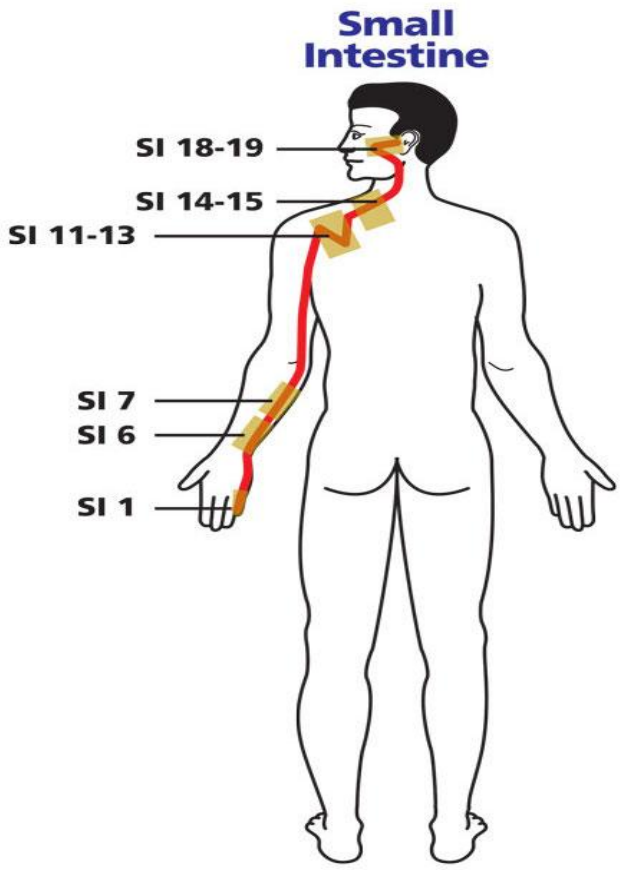


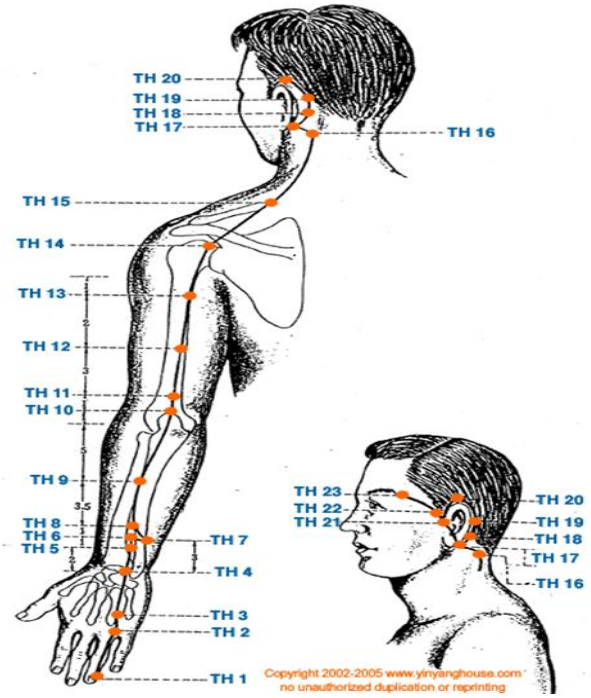
Image:

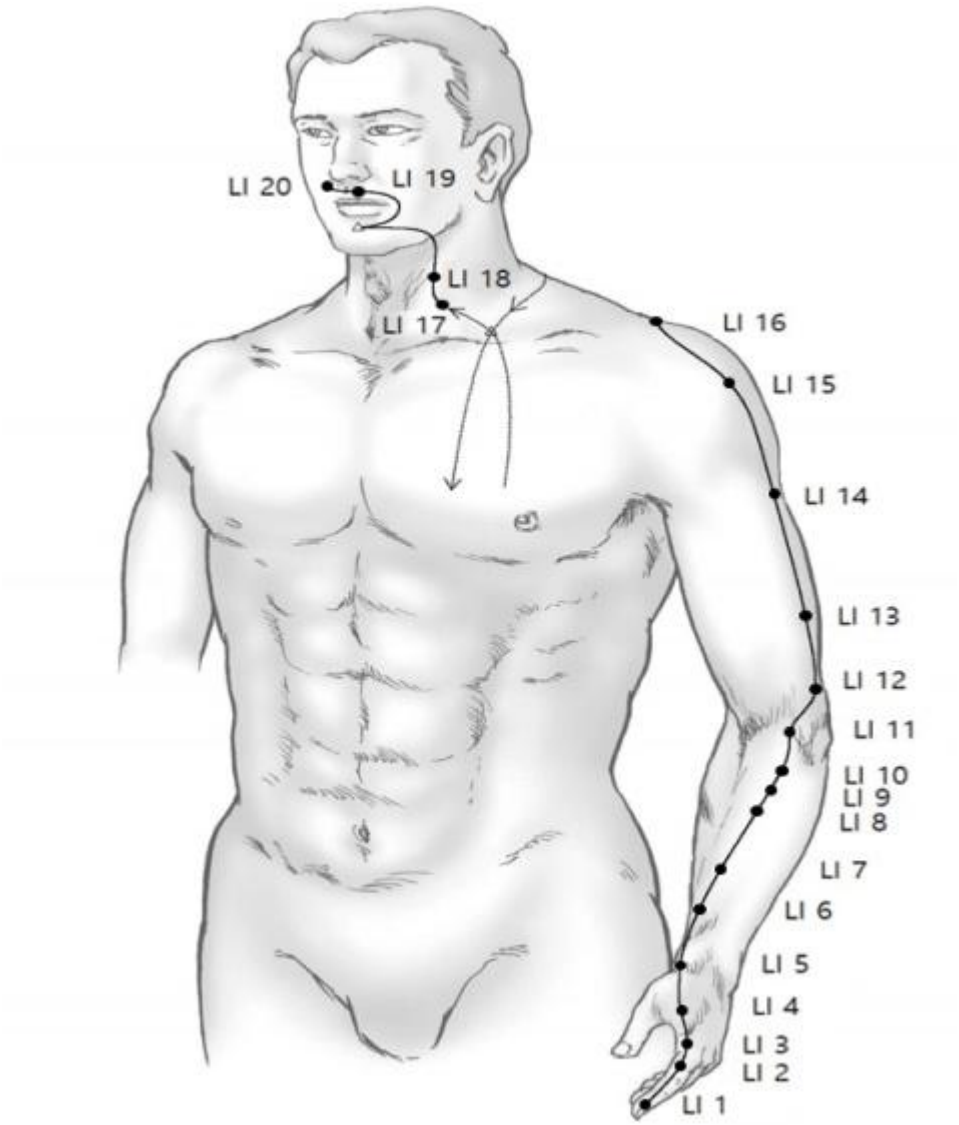
6. Large Intestine (LI) Meridian

Pathway: Begins at the tip of the index finger, ascends along the lateral aspect of the arm to the shoulder, and continues upwards, terminating at the opposite side of the face.

Clinical Use: Commonly involved in managing shoulder pain and arm disorders.

Image:





10. RESULTS & TABLES

Results

This observational study was conducted on **30 participants** receiving acupressure intervention for non-specific upper limb pain. The participants were evaluated based on demographic characteristics, side of involvement, occupation, pain levels (VAS), and functional disability (Quick DASH score) both before and after intervention.

Table 1: Gender-wise Distribution

Gender	No. of Participants	Percentage
Female	15	50.00%
Male	15	50.00%
Total	**30**	**100.00%**

Table 2: Age-wise Distribution

Age Group (Years)	No. of Participants	Percentage
21–30	4	13.33%
31–40	6	20.00%
41–50	13	43.33%
51–60	7	23.33%
Total	**30**	**100.00%**

Table 3: Affected Side Distribution

Affected Side	No. of Participants	Percentage
Right	24	80.00%
Left	6	20.00%
Total	**30**	**100.00%**

Table 4: Gender vs. Affected Side

Gender	Left Side	Right Side
Female	3 (50%)	12 (50%)
Male	3 (50%)	12 (50%)

Table 5: Occupation-wise Distribution

Occupation	No. of Participants	Percentage
Housewife	12	40.00%
Tailor	4	13.33%
Puri Maker	3	10.00%
Clerk	4	13.33%
Other Professions*	7	23.33%
Total	**30**	**100.00%**

*Includes accountant, computer operator, cashier, crane operator, CS engineer, security staff, sweeper.

Table 6: Duration of Pain (Gender-wise)

Gender	Mean (Years)	SD	p-value
Female	4.17	1.03	0.57
Male	3.80	1.07	0.27
Total	**3.98**	**1.05**	**0.39**

Table 7: Visual Analog Scale (VAS) Scores

Time	Mean Score	Standard Deviation	p-value
Pre-Treatment	5.79	±2.13	
Post-Treatment	0.79	±0.77	< 0.001 **

Table 8: Quick DASH Scores

Time	Mean Score	Standard Deviation	p-value
Pre-Treatment	45.31	±15.71	

Time	Mean Score	Standard Deviation	p-value
Post-Treatment	3.81	±4.55	< 0.001 **

Table 9: Age-wise VAS Change

Age Group	Pre VAS (Mean ± SD)	Post VAS (Mean ± SD)	p-value
21–30	5.93 ± 3.10	1.28 ± 0.90	< 0.001
31–40	4.57 ± 2.21	0.43 ± 0.70	< 0.001
41–50	6.29 ± 1.93	0.91 ± 0.73	< 0.001
51–60	5.81 ± 1.89	0.61 ± 0.79	< 0.001

Table 10: Gender-wise VAS Change

Gender	Pre VAS (Mean ± SD)	Post VAS (Mean ± SD)	p-value
Female	6.27 ± 2.27	0.70 ± 0.73	< 0.001
Male	5.30 ± 1.94	0.89 ± 0.81	< 0.001

Table 11: Gender-wise Quick DASH Scores

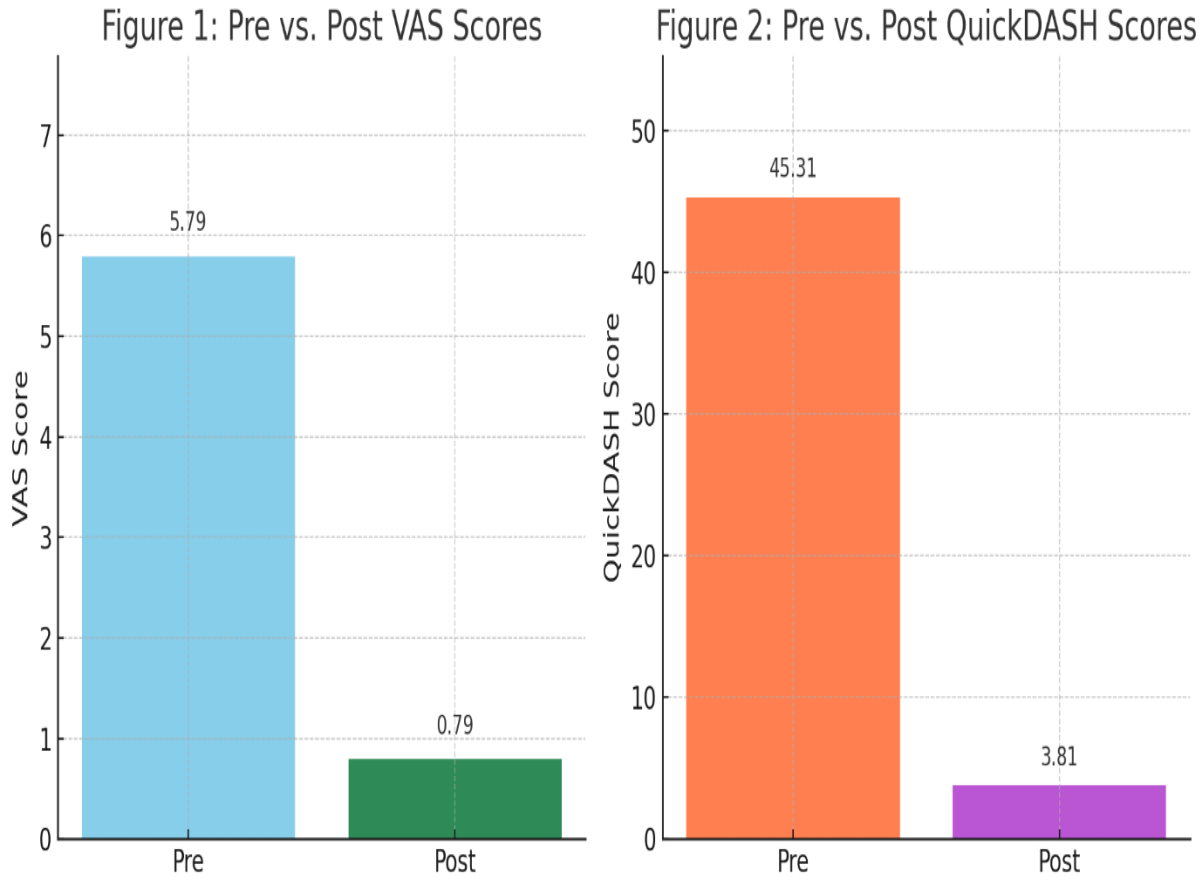
Gender	Pre Score (Mean ± SD)	Post Score (Mean ± SD)	p-value
Female	46.17 ± 16.29	3.13 ± 4.47	< 0.001
Male	44.45 ± 15.62	4.48 ± 4.68	< 0.001
Inter-gender comparison	–	–	< 0.05 *

Graphs

GRAPHS

Figure 1: Illustrates the significant reduction in VAS scores (from a mean of 5.79 to 0.79) after the intervention.

Figure 2: Depicts the substantial improvement in functional ability, as shown by the drop in Quick DASH scores (from 45.31 to 3.81).



In this observational study involving 30 participants from Group II, the findings revealed a highly significant improvement in both pain intensity and upper limb functional ability following the application of acupressure at acupuncture points. Pain levels, as measured by the Visual Analog Scale (VAS), decreased dramatically from a pre-intervention mean of **5.79 ± 2.13** to a post-intervention mean of **0.79 ± 0.77** (**$p < 0.001$**), reflecting substantial pain relief. Similarly, functional disability assessed using the Quick DASH questionnaire improved markedly, with scores reducing from a pre-treatment mean of **45.31 ± 15.71** to **3.81 ± 4.55** post-treatment (**$p < 0.001$**), indicating enhanced daily functioning. Age-wise and gender-wise analyses both confirmed statistically significant reductions in VAS and Quick DASH scores (all **$p < 0.001$**), with no significant differences between subgroups, suggesting the treatment was consistently effective across demographics. The outcomes highlight the potential efficacy of acupressure therapy focused on acupuncture points in managing non-specific upper limb pain and improving quality of life.

11. DISCUSSION

This observational study evaluated the role of acupuncture point-based interventions in patients with non-specific upper limb pain. The sample included 30 participants, evenly distributed by gender, predominantly between 41–50 years of age, and majorly right-handed, indicating a higher prevalence of symptoms on the dominant side.

The findings revealed a statistically significant reduction in pain, as measured by the Visual Analog Scale (VAS), with the mean score decreasing from 5.79 ± 2.13 pre-intervention to 0.79 ± 0.77 post-intervention ($p < 0.001$). These outcomes align with previous studies by Tough et al. (2009) and Vickers et al. (2018), which have documented the effectiveness of acupuncture in modulating nociceptive input and facilitating endorphin-mediated analgesia^ [1^,2^].

Moreover, the functional improvement, as measured by the Quick DASH score, was also profound. The score dropped from

45.31 ± 15.71 to 3.81 ± 4.55 ($p < 0.001$), indicating not just pain relief but also restoration in upper limb functional capacity. These changes suggest that acupuncture point stimulation might aid in improving muscular flexibility, circulation, and neural response—mechanisms supported by studies such as by Langevin et al. (2006) ^[3^].

The age-stratified and gender-specific analysis further confirmed consistent benefits across demographics, with females showing slightly better functional gains than males. Occupation-wise, a large portion of the study population were housewives and tailors—indicating the repetitive nature of their upper limb movements may predispose them to such conditions.

Although the study did not involve a control or comparison group due to its observational nature, the consistent improvement across participants and the statistical robustness of results suggests a strong clinical association between acupuncture point application and symptom relief.

12. CONCLUSION

The present observational study supports the beneficial role of acupuncture point stimulation in the management of non-specific upper limb pain. The intervention was associated with significant reductions in pain and marked improvement in upper limb function, regardless of age, gender, or occupational background. These findings highlight the potential of acupuncture-based interventions as a cost-effective, non-invasive, and functionally restorative approach in primary rehabilitation settings.

13. LIMITATIONS

Lack of a control group limits the ability to make causal inferences.

Small sample size (n = 30) may restrict generalizability to broader populations.

The study was limited to a short-term follow-up; long-term effects were not assessed.

Self-reported outcome measures like VAS and Quick DASH may be influenced by subjective bias.

No assessment of specific acupuncture protocols, pressure duration, or depth, which may influence outcomes.

14. RECOMMENDATIONS

Future studies should include randomized controlled trials to validate these observational findings.

Larger and more diverse sample populations should be recruited to enhance generalizability.

Incorporate long-term follow-up to determine the sustainability of pain relief and functional improvement.

Explore the comparative effectiveness of acupuncture versus other conservative interventions like physiotherapy, dry needling, or TENS.

Investigate specific point combinations and stimulation parameters to optimize treatment efficacy

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