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# A Comparative Clinical pilot Study on *Patra Pinda Sweda* and Dry Cupping Therapy in the Management of *Katishoola* w.s.r. to Non-Specific Low Back Pain

**[1] Dr. Pallavi Jain, [2] *Dr. Hemlata Shete, [3] Dr. Pradeep Grampurohit**

[1] PG, Department of panchakarma, [2] Assistant professor, Department of Roganidana, [3] Professor Department of panchakarma

[1,2,3] KAHER'S Shri BMK Ayurveda Mahavidyalaya, Belagavi

[1] pallaviratan19@gmail.com , 9340828109, [2] hemalata.kaher@kleayurworld.edu.in, 8217623771

[3] drpradeeplg.kaher@kleayurworld.edu.in, 9964144197

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## ABSTRACT

**Background:** *Katishoola* is associated with low back discomfort in Ayurveda. It is brought on by Vata vitiation, which manifests as pain, soreness, and restricted movements in *Kati Pradesa*. In *Brihatrayees, katishoola* is not listed as a distinct illness; rather, it can be linked to certain other ailments such as *Pristagraham and Katigraha*, which fall under the *Vatavyadhi* category. Several of the references list *Katishoola* as a symptom.

**Objectives:** Both Patra Pinda Sweda and dry cupping therapy, known to relieve pain, were used in this study for comparative analysis

**Method:** For the study, a sample size of 40 patients was chosen, and each of the two groups of 20 patients was randomly allocated. Group B received dry cupping therapy (on the 1st, 4th, and 7th days for 7 days) whereas Group A received Patra Pinda Sweda treatment (for 7 days).

**Results**: The present study found significant improvements from day 0 to day 7 in VAS, transformed score, flexion, extension, right lateral flexion, and left lateral flexion ($p < 0.001$ for all measures) in both groups A and B. The Mann-Whitney U test results indicate significant differences in VAS ($p = .010$) and flexion ($p = .033$) between the *patra pinda sweda* and cupping.

**Conclusion:** This study concludes that *patra pinda sweda* and dry cupping therapy significantly alleviate low back pain, improve quality of life, and enhance range of motion, making them viable care options for health professionals.

## INTRODUCTION

According to contemporary science, low back discomfort without a known cause is called as non-specific low back pain. Treatment plans for non-specific and specific low back pain are same. Nowadays, Low back complaints that fall under the non-specific category have a predetermined, largely conservative treatment plan.[1] In today's world, 80 percent of people have experienced low back pain (LBP), a problem that can be transient, recurrent, or chronic.[2] Low back pain is categorized as "specific" or "non-specific." Non-specific LBP refers to the absence of a recognized structural issue causing the pain, specific LBP is associated with a diagnosis stemming from trauma, injury, infection, or structural pathology.[3] Less than 20% of back pain patients have identifiable causes; these cases are referred as "red flags" because they exhibit symptoms and indicators that suggest a particular cause.[4] Up to 85% of all occurrences of low back pain have an unclear etiology, making the pain mechanism poorly understood and thus non-specific.[5] Non-specific low back pain significantly impacts a person's quality of life, making it a growing focus in scientific and public discourse.

While *Shoola* affecting the *Katipradesh* is considered as *katishoola* in Ayurveda. *Katishoola* is most common health problem persisting globally and affects people of almost all ages. Katishoola is one among the *vatajananatmaja vikara.*[6,7] Various scattered references in Ayurveda literature are available in context with *katishoola*. It is caused by *prakopa of Vatadosha* which afflicts *Kandara, Snayu, Asthi, and Mamsa*, involving the related *Srotas*. Pathologies of these structures result from Vata vitiation, which impairs functioning. The qualities of *guru* (heavy), *picchila* (sliminess), and *snigdha* (stickiness) belong to *Sleshmadhara Kala*. These qualities dry up in an exacerbated vata. The *snehana, swedana Karma* is induced to bring this agitated *vata* back to normal. *Bahya Snehana Swedana* helps lessen lumbar motions and more effectively relieve muscle spasms. External treatment is a more effective means of relieving spasm and catching-type discomfort.

**2. OBJECTIVE :** To Compare the effect of Patra Pinda Sweda and Dry Cupping Therapy in the Management of *Katishoola* (Non-Specific Low Back Pain).

**3. MATERIALS AND METHODS:**

**3.1 Trial Design & Participants:** Patients were chosen from OPD and IPD at Ayurveda Hospital after a thorough Institutional Ethical Committee review (IEC no. BMK/21/PG/PK/4) and clearance and as per Helsinki declaration Rules and based on underdefined criteria.

**3.2 Inclusion Criteria:** The study included subjects who experienced pain, stiffness, and restricted movement in the lower back region. A negative Straight Leg Raising (SLR) test was required for inclusion. Participants suitable for Snehana and Swedana treatments (specifically Patra Pinda Sweda) and Dry Cupping Therapy. The study was open to individuals aged 20-50, regardless of gender.

Table 1 : Visit Schedule :-

| | | Group A | Group B |
|---|---|---|---|
| Visit 1 | Day 0 | The Day Of Enrollment | The Day Of Enrollment |
| Visit 2 | Day 1 | *Sthanika Patra Pinda Sweda* | Dry Cupping |
| Visit 3 | Day 2 | *Sthanika Patra Pinda Sweda* | No treatment |
| Visit 4 | Day 3 | *Sthanika Patra Pinda Sweda* | No treatment |
| Visit 5 | Day 4 | *Sthanika Patra Pinda Sweda* | Dry Cupping |
| Visit 6 | Day 5 | *Sthanika Patra Pinda Sweda* | No treatment |
| Visit 7 | Day 6 | *Sthanika Patra Pinda Sweda* | No treatment |
| Visit 8 | Day 7 | *Sthanika Patra Pinda Sweda* | Dry Cupping |

**Group A: Patra Pinda Sweda**

To prepare *Patra Pinda Pottali*, fresh leaves (such as *Nirgundi, Shigru, Dhatura, Eranda*) are chopped, fried in a pan for a minute, then mixed with lemon pieces, grated coconut, turmeric powder, and *Moorchita Tila taila*, and cooked until brownish. These leaves are wrapped in a cotton cloth, tied to form a *pottali*. The *pottali* is then heated in 200ml of *Moorchita Tila taila*, ensuring proper heating. For treatment, the patient lies prone with the lumbar region exposed. The affected area is cleaned, oiled, and with the *pottali swedana* in circular motions until the heat dissipates. If needed, a second **pottali** is heated and applied until the desired effect is achieved. This procedure is done for 30 minutes each day over seven days. Afterward, the treated area is cleaned and the patient rests. Precautions include checking the *pottali's* temperature before each application and ensuring that the *pottalis* are securely tied to prevent leakage. If leakage occurs, a new *pottali* should be used.

**Group B: Dry Cupping Therapy**

Before the procedure, the patient's consent is obtained, and vital signs (pulse and blood pressure) are recorded. The patient is advised to have a light meal beforehand. During the procedure, the patient lies comfortably in a prone position. The affected area is cleaned with spirit and draped to expose it. Cups of appropriate size are applied, creating negative pressure through suction, and left for 8-10 minutes. Afterward, the cups are removed, and the area is cleaned with dry gauze. Post-procedure, the patient rests for 15 minutes for observation, and their vitals are monitored. Aseptic precautions are followed throughout, and the patient is observed for any complications, including bleeding.

**3.5 Sample size:** A sample size of 20 in each group was taken by conventional method.[8] The patients diagnosed with *Katigraha* were randomly assigned into 2 groups by open-label random sampling using a simple random table generated by online software http://www.randomization.com under the supervision of an Institutional medical research center by the investigator.

**3.6 Assessment Parameters:** Parameters will be assessed before treatment (day 0), and after treatment (day 7).

**3.6.1 Subjective Parameter**

- VAS (Visual Analogue Scale by WONG-BAKER Face Rating Scale).
- WHO Quality of Life Scale (WHOQOL-BREF Scale).

**3.6.2 Objective Parameter**

- Range Of Motion (ROM) in the low back region assessed by Goniometer.

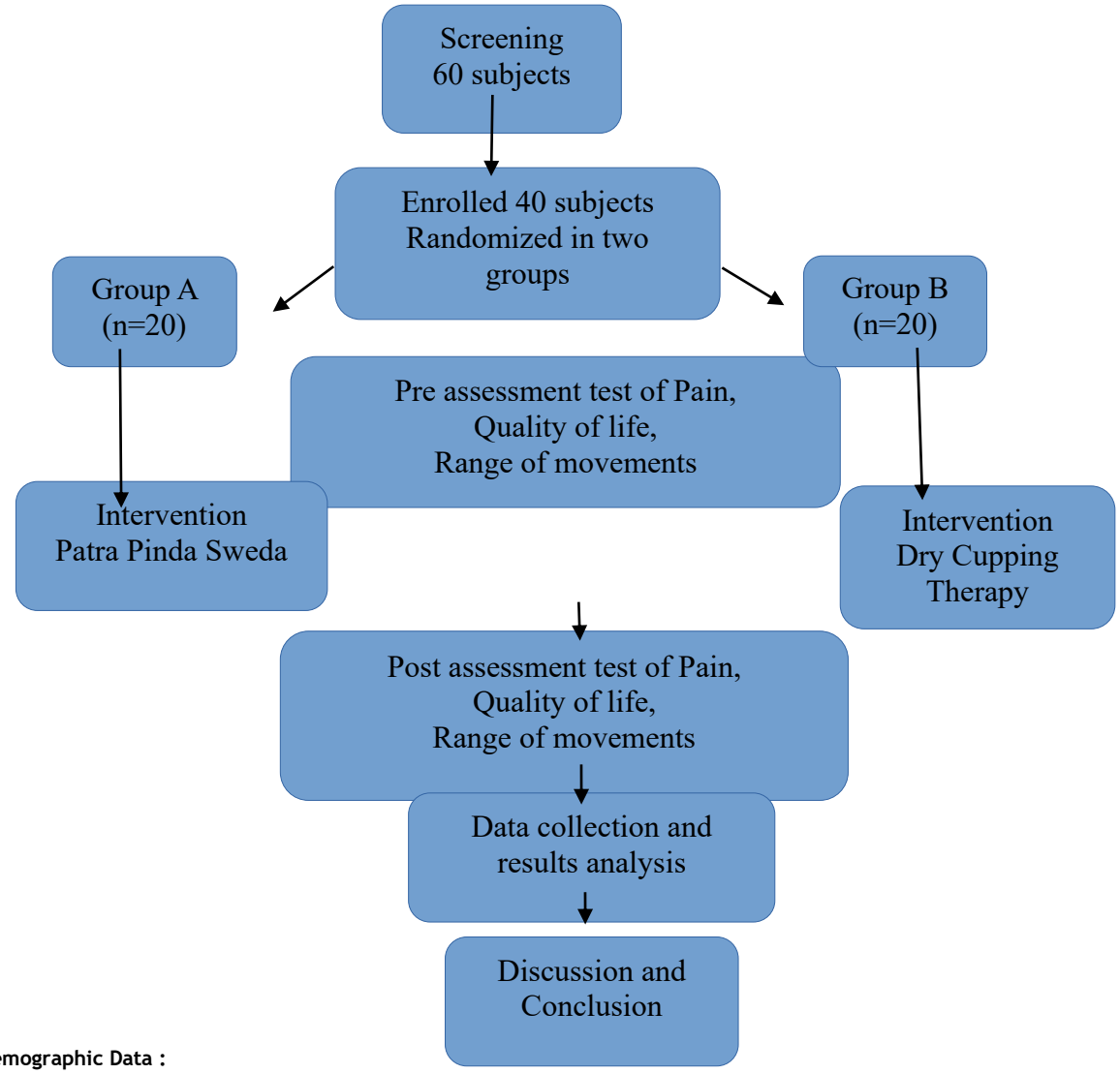
**3.7 Statistical Methods:** The data presentation was done using tabulation. Mean, Sd, and Percentages were descriptive statistics used to study Summary figures, Wilcoxon signed rank test and Mann Whitney were inferential statistics used to study the difference in assessment parameters within the group and between the group.

**3.3 Exclusion Criteria:** Patients with a history of spinal surgery, trauma, or sciatica were excluded from the study. Those with diagnosed tumors or malignancies, as well as individuals suffering from skin allergies or open wounds, were also excluded. These exclusions ensured the safety and relevance of the treatments for the study population.

**3.4 Groups and Interventions:** Patients of group A received 7 sittings of *patra pinda sweda* countinuously for duration of 7 days and group B received 3 sittings of dry cupping therapy with an interval of 2 days for duration of 7 days.

**4. RESULTS:**

Figure 1: Consort Flow chart showing the study process




**Demographic Data :**

Table 2: Gender wise distribution of subjects of katishoola

| Gender | N | % |
|---|---|---|
| Female | 22 | 55 |
| Male | 18 | 45 |
| Grand Total | 40 | 100 |

Table 3 : Age wise distribution of subjects of *katishoola*

| Age groups | n | % |
|---|---|---|
| 20-25 | 2 | 5 |
| 25-30 | 6 | 15 |
| 30-35 | 4 | 10 |
| 35-40 | 2 | 5 |
| 40-45 | 13 | 32.5 |
| 45-50 | 13 | 32.5 |
| Grand Total | 40 | 100 |

Table 4 : Weight wise distribution of subjects of *katishoola*

| weight | n | % |
|---|---|---|
| 50-55 | 3 | 7.5 |
| 55-60 | 7 | 17.5 |
| 60-65 | 12 | 30 |

| | | |
|---|---|---|
| 65-70 | 12 | 30 |
| 70-75 | 4 | 10 |
| 75-80 | 1 | 2.5 |
| 80-85 | 1 | 2.5 |
| Grand Total | 40 | 100 |

Table 5: *Prakruti* wise distribution of subjects of *katishoola*

| prakruti | N | % |
|---|---|---|
| Pitta-Kapha | 5 | 12.5 |
| Sanipattaja | 7 | 17.5 |
| Vata-Kapha | 25 | 62.5 |
| Vata-Pitta | 3 | 7.5 |
| Grand Total | 40 | 100 |

**Descriptive Statistics**

Table 6: Distribution of participants' stiffness levels across two groups: Patra Pinda Sweda (Group A) and Cupping (Group B).

| Groups | Stiffness | | | | | | |
|---|---|---|---|---|---|---|---|
| | Mild, Occasional | % | Moderate, 30-1hr daily | % | Severe, persistence>1 hr | % | Grand Total |
| Patra pinda sweda(A) | 19 | 95 | 1 | 5 | 0 | 0 | 20 |
| Cupping(B) | 15 | 75 | 4 | 20 | 1 | 5 | 20 |

Table 7: Distribution of participants' Tenderness levels across two groups: Patra Pinda Sweda (Group A) and Cupping (Group B).

| Group | Tenderness | | | | | | |
|---|---|---|---|---|---|---|---|
| | Grade 0 (no tenderness) | % | Grade 1 (mild tenderness) | % | Grade 2 (moderate tenderness) | % | Grand Total |
| Patra pinda sweda(A) | 15 | 75 | 4 | 20 | 1 | 5 | 20 |
| Cupping(B) | 15 | 75 | 5 | 25 | 0 | 0 | 20 |
| Grand Total | 30 | 75 | 9 | 22.5 | 1 | 2.5 | 40 |

Table 8: Distribution of participants' restricted movement of lumbar region levels across two groups: Patra Pinda Sweda (Group A) and Cupping (Group B).

| Groups | Restricted Movements of lumbar region | | | | |
|---|---|---|---|---|---|
| | Absent | % | Present | % | Grand Total |
| Patra pinda sweda(A) | 17 | 85 | 3 | 15 | 20 |
| Cupping(B) | 14 | 70 | 6 | 30 | 20 |
| Grand Total | 31 | 77.5 | 9 | 22.5 | 40 |

**Test statistics**

Table 9 : Wilcoxon signed rank test to compare various measurements on day 0 and day 7 within subjects of group A(Patra pinda sweda).The variables measured include VAS (Visual Analog Scale for pain), Transformed Score, Flexion, Extension, Right Lateral Flexion, and Left Lateral Flexion.

| | N | Median | Std. Deviation | Z | P-value |
|---|---|---|---|---|---|
| VAS day0 | 20 | 7.5 | 0.60481 | -3.983b | <0.001 |
| VAS day7 | 20 | 5 | 1.02084 | | |
| Transformed Score day0 | 20 | 44 | 6.69274 | -4.086c | <0.001 |
| Transformed Score day7 | 20 | 53 | 6.08017 | | |
| Flexion day0 | 20 | 30 | 0.96655 | -4.024c | <0.001 |
| Flexion day7 | 20 | 32.5 | 0.9333 | | |
| Extension day0 | 20 | 13 | 0.97872 | -3.982c | <0.001 |

| | | | | | |
|---|---|---|---|---|---|
| Extension day7 | 20 | 16 | 0.60698 | | |
| Right Lateral Flexion day0 | 20 | 22 | 1.13671 | -3.955c | <0.001 |
| Right Lateral Flexion day7 | 20 | 23 | 1.25237 | | |
| Left Lateral Flexion day0 | 20 | 20 | 0.68825 | -4.026c | <0.001 |
| Left Lateral Flexion day7 | 20 | 22.5 | 0.89443 | | |

Level of significance 99.9% with P<0.001

Table 10: Wilcoxon signed rank test to compare various measurements on day 0 and day 7 within subjects of group B (Cupping therapy)

| | N | Median | Std. Deviation | Z | P-value |
|---|---|---|---|---|---|
| VAS day0 | 20 | 8 | 0.81 | -4.127[b] | <.001 |
| VAS day7 | 20 | 6 | 1.19 | | |
| Transformed Score day0 | 20 | 40.8 | 5.7 | -4.029[c] | <.001 |
| Transformed Score day7 | 20 | 52.25 | 5.8 | | |
| Flexion day0 | 20 | 30 | 1.17 | -3.994c | <.001 |
| Flexion day7 | 20 | 32 | 1.12 | | |
| Extension day0 | 20 | 13 | 0.8 | -3.992[c] | <.001 |
| Extension day7 | 20 | 15.5 | 0.9 | | |
| Right Lateral Flexion day0 | 20 | 22 | 0.99 | -4.001[c] | <.001 |
| Right Lateral Flexion day7 | 20 | 24 | 1.23 | | |
| Left Lateral Flexion day0 | 20 | 20 | 0.58 | -3.985[c] | <.001 |
| Left Lateral Flexion day7 | 20 | 22 | 1.05 | | |
| a. Wilcoxon Signed Ranks Test | | | | | |
| b. Based on positive ranks. | | | | | |
| c. Based on negative ranks. | | | | | |

Level of significance 99.9% with P<0.001

Table 11: Mann-Whitney U test to compare various measurements between subjects of Group A and Group B

| | N | Median | Std. Deviation | Mann-Whitney U | Z | P-Value |
|---|---|---|---|---|---|---|
| VAS | 40 | 5.50 | 1.12 | 111.5 | -2.57 | **.010** |
| Transformed Score | 40 | 53.00 | 5.92 | 167.0 | -.937 | .349 |
| Flexion | 40 | 32.00 | 1.10 | 125.5 | -2.13 | **.033** |
| Extension | 40 | 16.00 | 0.80 | 172.0 | -.83 | .403 |
| Right lateral flexion | 40 | 24.00 | 1.22 | 187.0 | -.36 | .716 |
| Left lateral flexion | 40 | 22.00 | 0.97 | 162. | -1.15 | .247 |

Level of significance 95% with P<0.05

Table 12: Summary figures for VAS and Flexion parameters

| | Groups | N | Median | Sd |
|---|---|---|---|---|
| VAS | PPS | 20 | 5 | 1.02 |
| | Dry cupping | 20 | 6 | 1.19 |
| Flexion | PPS | 20 | 32.5 | 0.93 |
| | Dry cupping | 20 | 32 | 1.12 |

## DISCUSSION

In the current study on katishoola, females exhibited a slightly higher prevalence (55%) compared to males (45%), with the condition increasing from 20% in the 20-30 age group to 65% in the 40-50 age group. This suggests a potential gender-related musculoskeletal variation, aligning with the findings of Indubala Valsan et al., who reported a higher incidence of katigraha in females (55%) compared to males (45%).[9] The higher prevalence in older age groups may be attributed to increased physical strain and lack of exercise, which can lead to degenerative changes and Vata-vitiated disorders. Similar findings were observed by B.M. Rashmi et al., who noted a 63.3% incidence in the 31-50 age group.[10] The majority of patients in this study (62.5%) had a Vata Kapha Prakruti, which suggests a predisposition to Vata-dominant disorders. Additionally, 60% of patients weighed between 60-70 kg, indicating that lack of regular physical activity may contribute to low back pain.

In this study, among patients treated with Patra Pinda Sweda Chikitsa, 95% reported mild occasional stiffness, 75% had no tenderness, and 85% exhibited no restricted lumbar movements. In contrast, 75% of patients undergoing dry cupping therapy experienced mild occasional stiffness, 75% had no tenderness, and 70% showed no restricted movements. Patra Pinda Sweda, a form of snigdha sweda that primarily targets Vata dosha, uses medicinal leaves with Ushna virya qualities to balance vitiated Vata and Kapha doshas. This therapy has analgesic and anti-inflammatory effects, alleviating musculoskeletal pain. Statistical analysis within group A showed significant improvements in pain ($p<0.001$), quality of life ($p<0.001$), and range of motion ($p<0.001$), suggesting its effectiveness in pain relief. The application of Patra Pinda Sweda promotes muscle relaxation, increases local blood flow, and enhances toxin release and circulation,[11,12] thereby supporting its role in managing low back pain and validating katishoola as a sweda sadhya vyadhi.

In this study, Table 10 demonstrated significant improvements within group B (dry cupping therapy) in terms of pain ($p<0.001$), quality of life ($p<0.001$), and range of motion ($p<0.001$). Cupping therapy works by softening tissues and increasing blood flow to stagnant areas, facilitating the delivery of oxygen and nutrients to tissues and promoting the removal of toxins through improved circulation. This process helps eliminate dead cells and debris, with toxins excreted by the lymphatic system.[13] These findings suggest that dry cupping therapy significantly alleviates low back pain through enhanced circulation. Additionally, Table 11 shows significant differences between group A (Patra Pinda Sweda) and group B, with a lower VAS score ($p=0.010$) and improved flexion movements ($p=0.033$) in group A. This indicates that Patra Pinda Sweda is more effective than dry cupping therapy in treating katishoola (low back pain).

## CONCLUSION

Katishoola (low back pain) is a prevalent musculoskeletal disorder and a leading cause of disability globally, making effective treatments essential for pain reduction and functional restoration. This study addresses the limited comparative research on external therapies for low back pain. The findings indicate that both Patra Pinda Sweda and dry cupping therapy are significantly effective in alleviating low back pain, improving quality of life, and enhancing the range of motion in the lumbar region. These therapies may, therefore, be recommended by healthcare professionals as treatment options for patients with non-specific low back pain.

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