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Research Article

Effectiveness of Myofascial Release Versus Cupping Therapy in Managing Trapezitis Among Smartphone Users

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Abstract

With the growing dependence on smartphones, there has been a noticeable increase in posture-related problems and muscle conditions, such as trapeziusitis. This study aimed to compare the effects of Myofascial Release (MFR) and Cupping Therapy on individuals diagnosed with trapezitis associated with prolonged smartphone use. Fifty participants took part and were randomly divided into two groups. Group A was treated with MFR, while Group B received Cupping Therapy. Both groups also underwent routine physiotherapy. Pain levels were tracked using the Visual Analogue Scale (VAS), and cervical range of motion (CROM) was measured using a goniometer. The findings showed that both treatments helped reduce pain and improve mobility, but MFR showed slightly better results in terms of pain relief and increased neck movement.

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KEYWORDS: Myofascial Release, Cupping Therapy, Trapezitis, Smartphone Overuse, Pain Relief, Cervical Range of Motion

1. INTRODUCTION

Over the last twenty years, the widespread adoption of smartphones has significantly transformed daily life, becoming central to communication, entertainment, and professional activities. Despite their numerous advantages, these devices have also contributed to a surge in postural and musculoskeletal disorders, particularly among young adults and working professionals. One increasingly prevalent condition linked to extended screen use is trapezitis—a disorder marked by inflammation, tightness, and spasms in the upper portion of the trapezius muscle. This issue is commonly observed in individuals who spend long durations on smartphones or computers without adequate ergonomic support or regular movement breaks. The trapezius muscle spans a broad area, stretching from the occipital bone down to the lower thoracic spine and extending laterally to the scapular spine. It is instrumental in facilitating shoulder, neck, and upper back movements, including actions such as shrugging and neck extension. Continuous static posture, repetitive use, and poor ergonomic habits often strain the upper trapezius region, eventually resulting in muscular fatigue, spasms, pain, and limited mobility of the cervical spine—hallmark features of trapezitis. Frequent smartphone users are particularly at risk due to the typical posture associated with device usage. The forward tilt of the head and downward gaze places an excessive load on the cervical spine. Studies indicate that holding the head at a 60-degree forward angle can exert up to 60 pounds of pressure on the cervical region. Over time, this increased mechanical stress may lead to repetitive microtrauma, localized inflammation, and chronic pain in the neck and shoulders. To address such musculoskeletal conditions, various physiotherapy methods have been employed. Among these, Myofascial Release (MFR) and Cupping Therapy have gained significant attention. MFR is a manual therapy that focuses on relieving fascial restrictions to improve circulation, enhance mobility, and reduce muscle tension. It involves applying slow, sustained pressure to the connective tissue. In contrast, Cupping Therapy—derived from traditional healing systems—uses suction to generate negative pressure on the skin, facilitating increased blood flow, reducing muscular stiffness, and accelerating tissue recovery. While both modalities have demonstrated therapeutic benefits individually, there remains limited comparative research on their efficacy in treating trapezitis associated with prolonged smartphone use. This study, carried out at R.D. Gardi Medical College and a local gaming facility in Ujjain, seeks to evaluate and compare the effectiveness of Myofascial Release and Cupping Therapy in the management of trapezitis among habitual smartphone users.

2. OBJECTIVES OF THE STUDY:

1. To examine and compare how effective Myofascial Release and Cupping Therapy are in relieving pain caused by trapezitis in regular smartphone users.
2. To observe and evaluate changes in cervical range of motion (CROM) after administering each of these therapies.
3. To identify which manual therapy method works better for managing trapezitis linked to extended smartphone use.

3. METHODOLOGY

Study Design: This study followed a comparative interventional approach, aiming to assess the effects of two different treatment methods over a set period.

Duration: The study was carried out over eight months.

Locations: Data collection and interventions took place at two sites in Ujjain:

- The Physiotherapy Outpatient Department at R.D. Gardi Medical College
- A local gaming zone frequently visited by the target population

Participants

A total of 50 male participants, aged between 15 and 30 years, were included in the study. The decision to focus solely on male subjects was intended to reduce variability stemming from hormonal and anatomical differences. However, future studies should aim to include participants of all genders to broaden the scope and applicability of the findings.

Sampling Criteria

Inclusion

- Smartphone usage >3 hours/day
- Pain in trapezius for 3–6 weeks
- VAS score between 4–9
- Reduced CROM
- Not on medication or undergoing physiotherapy

Exclusion

- Congenital deformities
- Neurological symptoms
- Recent surgery
- Systemic disease
- Dermatological issues

Randomization Procedure

Participants were divided into two groups—Group A received Myofascial Release, and Group B underwent Cupping Therapy. The group assignment was done randomly with the help of a computer-generated number table. To ensure the process remained unbiased, sealed opaque envelopes were used for allocation, which were only opened right before the treatment began.

Intervention Duration and Frequency:

Total Duration: 2 weeks
Frequency: 5 sessions per week (total 10 sessions)
Session Duration: ~30 minutes per participant

Conventional Therapy:

- Active neck and scapular exercises (2 sets × 10–15 reps)
- Ultrasound therapy (1 MHz, 0.5W/cm², continuous mode for 8 minutes)
- Manual stretching of the trapezius

Outcome Measures
Pain: Visual Analogue Scale (VAS)
Cervical Range of Motion (CROM): Goniometer

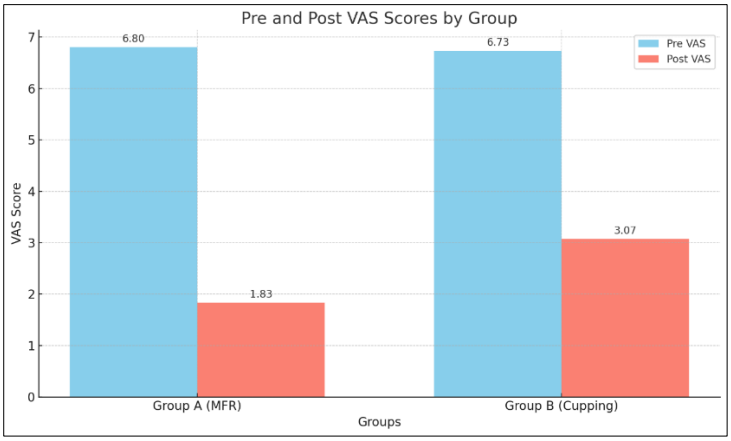
4. RESULTS

A total of 50 male participants (aged 15–30) were randomly assigned to two equal groups:
Group A (n=25): Received Myofascial Release (MFR) + conventional physiotherapy
Group B (n=25): Received Cupping Therapy + conventional physiotherapy.
Pre and post-intervention outcomes were measured using:
VAS (Visual Analogue Scale): For pain intensity (0 = no pain, 10 = worst possible pain)
CROM (Cervical Range of Motion): Assessed in degrees using a goniometer.

Table 1: Within-Group Comparison of VAS Scores (Paired Sample t-test)

Group	Mean VAS (Pre)	Mean VAS (Post)	Mean Difference	SD (Diff.)	t-value	*p*-value
Group A (MFR)	6.80	1.83	4.97	0.562	41.00	< 0.001
Group B (Cupping)	6.73	3.07	3.66	0.724	14.552	< 0.001

Interpretation: Both groups showed a significant reduction in pain, but Group A had a greater mean reduction.

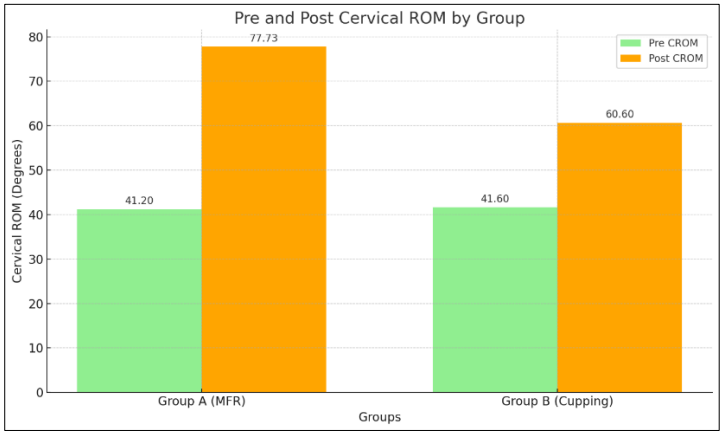


Graph 1: Pre and Post-VAS Scores

Table 2: Within-Group Comparison of CROM Scores (Paired Sample t-test)

Group	Mean CROM (Pre)	Mean CROM (Post)	Mean Difference	SD (Diff.)	t-value	*p*-value
Group A (MFR)	41.20°	77.73°	36.53°	2.54	19.50	< 0.001
Group B (Cupping)	41.60°	60.60°	19.00°	2.48	23.27	< 0.001

Interpretation: Significant improvement in CROM was observed in both groups, with Group A showing superior gains.



Graph 2: Pre- and Post-Cervical ROM

Table 3: Between-Group Comparison of Post-Test VAS Scores (Independent Sample t-test)

Group	Mean VAS (Post)	SD	t-value	*p*-value
Group A	1.83	0.594	7.839	< 0.001
Group B	3.07	0.884		

Interpretation: Post-treatment pain intensity was significantly lower in Group A compared to Group B.

Table 4: Between-Group Comparison of Post-Test CROM Scores (Independent Sample t-test)

Group	Mean CROM (Post)	SD	t-value	*p*-value
Group A	77.73°	3.65	15.502	< 0.001
Group B	60.60°	2.17		

Interpretation: Post-treatment cervical ROM was significantly higher in Group A than in Group B.

5. STATISTICAL ANALYSIS OF RESULTS

To determine the effectiveness of Myofascial Release (MFR) and Cupping Therapy in managing trapezitis among smartphone users, statistical tools were applied to analyze both within-group and between-group outcomes. Pain intensity was assessed using the Visual Analogue Scale (VAS), while cervical range of motion (CROM) was measured with a goniometer. Data analysis was conducted using SPSS Version 25, and a significance level of $p < 0.05$ was set for all tests. The paired sample t-test was used to compare pre- and post-treatment outcomes within each group. In Group A, which received Myofascial Release along with conventional therapy, the mean VAS score decreased from 6.80 (±0.704) to 1.83 (±0.594), which was statistically significant ($t = 41.000$, $p < 0.001$). Similarly, in Group B, treated with Cupping Therapy and conventional therapy, the VAS score decreased from 6.73 (±0.676) to 3.07 (±0.884), also showing statistical significance ($t = 14.552$, $p < 0.001$). While both groups showed meaningful reductions in pain levels, the greater improvement in Group A indicates a more effective response to MFR.

Cervical range of motion also improved significantly in both groups. In Group A, the CROM increased from a pre-treatment mean of 41.20° (±2.42) to a post-treatment mean of 77.73° (±3.65), with a t-value of 19.500 ($p < 0.001$). Group B's CROM improved from 41.60° (±2.67) to 60.60° (±2.17), also statistically significant with a t-value of 23.270 ($p < 0.001$). These results demonstrate that both MFR and Cupping Therapy contributed to functional improvement, though MFR produced a more pronounced increase in range of motion.

For comparison between the two groups after treatment, independent sample t-tests were applied. The post-treatment VAS score was significantly lower in Group A (mean 1.83) compared to Group B (mean 3.07), with a t-value of 7.839 ($p < 0.001$). Likewise, post-treatment CROM in Group A was significantly higher at 77.73° compared to 60.60° in Group B ($t = 15.502$, $p < 0.001$).

Overall, the statistical analysis confirms that while both interventions were effective, Myofascial Release resulted in a greater reduction in pain and a more substantial improvement in cervical mobility. These findings provide strong evidence in favor of using MFR as a preferred technique in managing trapezitis caused by prolonged smartphone use.

6. DISCUSSION

The present study compared the effectiveness of Myofascial Release (MFR) and Cupping Therapy in managing trapezitis among smartphone users. The condition is increasingly observed due to prolonged forward head posture and repetitive neck strain associated with excessive smartphone usage. In this study, both treatment groups showed statistically significant improvements in pain reduction and cervical range of motion (CROM), but the group receiving MFR exhibited superior results. These findings are consistent with the results of Ajimsha *et al.* (2015), who conducted a systematic review of randomized controlled trials and concluded that Myofascial Release is effective in improving musculoskeletal function and reducing pain across various conditions involving fascial restrictions. The technique's ability to modulate fascial tension, increase circulation, and release trigger points may explain the observed improvement in cervical ROM and reduction in VAS scores in the present study. Cupping Therapy, although less effective in comparison to MFR in this study, still demonstrated significant benefits. This aligns with the meta-analysis by Cramer *et al.* (2015), which found that cupping is moderately effective for short-term relief of musculoskeletal pain, including conditions like neck and shoulder tension. The mechanism of action in cupping therapy involves creating a negative pressure on the skin, which may help improve microcirculation and reduce superficial muscle stiffness. However, its effects are often transient and superficial, which may account for the relatively smaller improvements in ROM and pain reduction observed in our cupping group. In a randomized controlled trial by Farhadi *et al.* (2009), cupping was also shown to provide short-term relief in nonspecific low back pain, but the authors noted variability in outcomes depending on individual pain thresholds and responsiveness. Similar limitations may apply in trapezitis, especially among younger populations with high postural demands due to device use.

Moreover, the findings by Hou *et al.* (2002) support the current study's outcomes, where manual therapeutic interventions,

particularly those targeting myofascial structures, were found to offer immediate and lasting benefits in reducing myofascial pain sensitivity and increasing cervical mobility. Their results emphasize the role of deeper, tissue-targeted approaches such as MFR over more superficial methods. Despite these promising findings, certain limitations exist. The study only included male participants aged 15–30 years, which limits the generalizability of the results. Further, while the intervention duration (2 weeks) was sufficient to observe short-term effects, long-term follow-up was not conducted. Future studies should consider a more diverse sample and longer observation periods to confirm sustained outcomes. Additionally, while both interventions were combined with conventional physiotherapy, the contribution of each component to the overall improvement remains uncertain. In conclusion, Myofascial Release appears to be more effective than Cupping Therapy in managing trapezitis among smartphone users. This could be attributed to its deeper neuromuscular and fascial impact, which directly addresses the biomechanical dysfunctions caused by poor posture. While cupping therapy remains a valid option for temporary relief or when MFR is contraindicated, physiotherapists should consider incorporating MFR as a primary manual therapy technique in treatment protocols for technology-related musculoskeletal disorders.

7. CONCLUSION

This study was conducted to compare the effectiveness of Myofascial Release (MFR) and Cupping Therapy in managing trapezitis among smartphone users. Based on the outcomes measured through the Visual Analogue Scale (VAS) and Cervical Range of Motion (CROM), both treatment modalities were found to be effective in reducing pain and improving mobility. However, Myofascial Release demonstrated significantly greater improvements in both parameters when compared to Cupping Therapy. The results revealed that participants in the MFR group experienced a more substantial reduction in pain intensity and a greater enhancement in cervical mobility than those in the cupping group. These differences were supported by statistical analysis, with p-values < 0.001 indicating high significance. Given the growing prevalence of postural dysfunctions due to excessive smartphone use, this study highlights the value of incorporating Myofascial Release as a primary manual therapy technique in physiotherapy management of trapezitis. It is a safe, non-invasive, and effective method that addresses the fascial and muscular components of the disorder, leading to better functional outcomes. While cupping therapy may still be beneficial in certain clinical scenarios, especially for temporary pain relief or patient preference, this study recommends Myofascial Release as a more effective intervention for long-term relief in cases of trapezitis associated with smartphone overuse.

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