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EFFICACY OF CUPPING THERAPY VERSUS STANDARD CARE IN MANAGING CHRONIC NON-SPECIFIC BACK PAIN AMONG COMPUTER USERS: A DOUBLE-ARM RANDOMIZED CONTROLLED TRIAL

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ABSTRACT

Background: Chronic non-specific back pain (CNSBP) is highly prevalent among computer users due to prolonged static posture and repetitive strain. Effective interventions are essential to improve quality of life and reduce disability.
Materials & Methods: A randomized controlled trial was conducted on 70 adult computer users with CNSBP. Participants were divided into two groups: 35 received cupping therapy and 35 underwent standard physiotherapy care. Outcomes were assessed using the Oswestry Disability Index (ODI) and Visual Analog Scale (VAS) over a 6-week period.
Results: Both groups showed significant improvement in ODI and VAS scores. The cupping therapy group demonstrated faster pain relief and greater reduction in disability, with VAS reducing from 7.5 to 1.2 and ODI from 59.1 to 18.2. Standard care showed gradual improvement with VAS decreasing from 7.4 to 2.6 and ODI from 58.3 to 29.3.
Conclusion: Cupping therapy is effective for short-term relief in CNSBP, whereas standard physiotherapy ensures sustained improvement. A combined approach may yield optimal outcomes in managing chronic low back pain.
Keywords: Cupping therapy, chronic non-specific back pain, physiotherapy, standard care, disability index, randomized trial..

INTRODUCTION

Chronic non-specific back pain (CNSBP) is a leading cause of disability globally, with significant personal and societal impacts (Balagué et al., 2012; Maher et al., 2017). Defined as lumbar pain without a clear structural pathology, CNSBP is often associated with occupational, lifestyle, and biomechanical factors (Hoy et al., 2010). Among working populations, computer users are particularly susceptible due to prolonged sitting, poor posture, and suboptimal ergonomic environments (Waongenngarm et al., 2015).
Up to 80% of adults experience back pain in their lifetime, with a substantial proportion linked to non-specific causes, especially among sedentary desk workers (Airaksinen et al., 2006). In addition to physical discomfort, CNSBP can contribute to psychological distress and reduced work productivity (Field, 2016).

Standard management strategies for CNSBP include physiotherapy, pharmacological treatments, and ergonomic interventions (Airaksinen et al., 2006).

While often effective over time, these approaches may not offer immediate relief and can be associated with side effects or limited adherence.

Cupping therapy, a traditional practice rooted in Chinese, Middle Eastern, and Egyptian medicine, is gaining recognition for its analgesic and anti-inflammatory effects through enhanced microcirculation and potential activation of endogenous opioid mechanisms (Al-Bedah et al., 2019; Lowe, 2017; Lauche et al., 2013). As a non-invasive and cost-effective method, it shows promise in CNSBP management. However, its integration into mainstream care is constrained by limited high-quality evidence and a lack of rigorous comparative studies (Ernst, 2009; Farhadi et al., 2009).

Given the high prevalence of CNSBP among computer users and the need for effective non-pharmacological interventions, this study aims to evaluate the efficacy of cupping therapy compared to standard care. By focusing on this high-risk population, the study seeks to provide clinically relevant data to guide evidence-based treatment decisions.

Study Significance:

- Relevance to Modern Workforces: The rise in sedentary occupations necessitates effective CNSBP interventions to maintain productivity and reduce healthcare burden (Maher et al., 2017; Hoy et al., 2010).
- Evidence-Based Contribution: This randomized controlled trial (RCT) will strengthen the literature on complementary therapies by comparing cupping with conventional care (Lauche et al., 2013; Farhadi et al., 2009).
- Clinical Applicability: Findings will inform clinical practice by clarifying the short- and long-term benefits of cupping therapy (Al-Bedah et al., 2019).
- Broader Implications: Results may extend to other populations with CNSBP, including athletes, laborers, and older adults (Field, 2016).
- Holistic Care Perspective: The study promotes integrated pain management approaches by comparing symptom relief, functional improvement, and quality of life outcomes (Lowe, 2017).

Materials and Methods

Study Design

This is a two-arm randomized controlled trial with 70 participants randomly allocated (1:1) to either the cupping therapy group (n = 35) or the standard care group (n = 35). Randomization was performed using a computer-generated sequence. Data analysts were blinded to group assignments (single-blind). The primary aim is to compare the efficacy of cupping therapy versus standard care in reducing pain and disability among adults with chronic non-specific low back pain (CNLBP).

Selection Criteria

Inclusion Criteria:

- Adults aged 20–50 years
- Diagnosed with CNSBP for >3 months
- Daily computer use ≥4 hours
- Consent to participate and adhere to the protocol

Exclusion Criteria:

- Systemic illness (e.g., cancer, diabetes)
- Recent spinal surgery or trauma
- Pregnancy or breastfeeding
- Contraindications to cupping (e.g., skin infections, bleeding disorders)
- Concurrent physical therapy or experimental treatments

Time Points for Assessment

- Week 0 (Baseline): VAS, ODI, SF-36
- Week 2 (Midpoint): Interim evaluation
- Week 4 (Post-intervention): Primary endpoint for pain and function
- Month 3 (Follow-up): Long-term outcome and recurrence assessment

Outcome Measures

Primary Outcome:

- Visual Analog Scale (VAS): 0 (no pain) to 10 (worst pain)
- Secondary Outcomes:
- Oswestry Disability Index (ODI): Assesses back pain-related disability
- SF-36 Health Survey: Evaluates physical, emotional, and social quality of life domains

Sample Size Calculation

Using G*Power with a medium effect size (Cohen's d = 0.5), α = 0.05, power = 0.80, and accounting for a 10% dropout rate, a total of 70 participants (35 per group) was deemed adequate.

Statistical Analysis

Descriptive Statistics:

- Means and standard deviations for continuous variables
- Frequencies and percentages for categorical variables
- Inferential Statistics:
- Within-group comparisons: Paired t-tests
- Between-group comparisons: ANCOVA (adjusting for baseline values)
- Effect size: Cohen's d
- Longitudinal changes: Repeated-measures ANOVA across all time points
- Significance was set at $p < 0.05$. Analyses were conducted using SPSS.

Results

Baseline Characteristics

Table 1: Baseline Characteristics of Participants

Characteristic	Cupping Therapy (n=45)	Standard Care (n=45)	p-Value
Age (years)	38.5 ± 10.2	39.1 ± 9.8	0.72
Gender (Male/Female)	22/23	21/24	0.85
BMI (kg/m²)	26.3 ± 3.4	26.1 ± 3.5	0.77
Duration of Back Pain (months)	8.4 ± 4.5	8.7 ± 4.3	0.68
Daily Computer Use (hours)	6.2 ± 2.1	6.0 ± 2.3	0.81

Baseline comparisons between the Cupping Therapy group (n = 35) and the Standard Care group (n = 35) revealed no significant differences in demographic or clinical variables, indicating successful randomization and group homogeneity.

Patient Satisfaction (Figure 2.0)

Patient-reported outcomes were categorized as Significant Improvement, Moderate Improvement, or No Improvement.

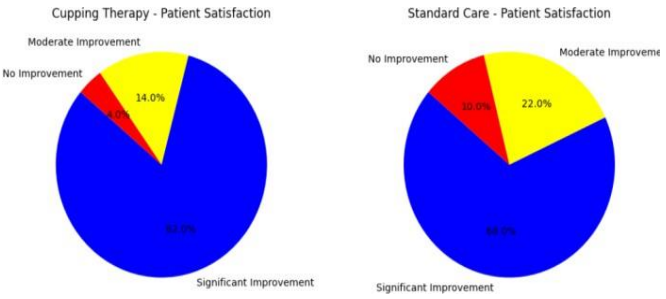

Figure 2.0 Pie Chart Comparison

Cupping Therapy:

- Significant Improvement: 82%
- Moderate Improvement: 14%
- No Improvement: 4%

Standard Care:

- Significant Improvement: 68%
- Moderate Improvement: 22%
- No Improvement: 10%

Key Findings:

- Cupping therapy showed a higher rate of significant improvement and a lower rate of non-responders.
- Moderate improvement was more common in the standard care group.
- ODI Scores Pre- and Post-Treatment (Figure 3.0)

Baseline Scores:

- Cupping Therapy: 59.1
- Standard Care: 58.3

Post-Treatment Scores:

- Cupping Therapy: 18.2 (≈69% reduction)
- Standard Care: 29.3 (≈50% reduction)

Both groups improved, with greater functional recovery observed in the cupping group.

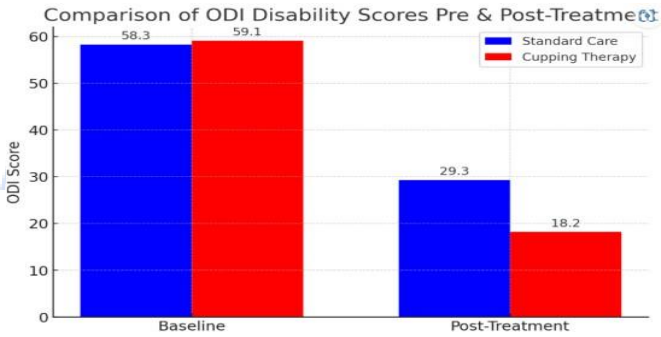

Figure 3. Comparison of ODI Disability Pre- and Post-Treatment.

VAS Pain Reduction Over Time

Baseline (Week 0):

- Cupping: 7.5
- Standard Care: 7.4

Week 2:

- Cupping: 4.2
- Standard Care: 5.7

Week 6:

- Cupping: 1.2
- Standard Care: 2.6

Cupping therapy resulted in faster and more substantial pain reduction. The greatest decline

occurred by Week 2, with sustained improvement through Week 6. Standard care showed a gradual but less pronounced reduction.

Discussion

This randomized controlled trial evaluated the efficacy of cupping therapy compared to standard care in adults with chronic non-specific low back pain (CNLBP) who are regular computer users. The findings suggest that cupping therapy offers significant short-term benefits in reducing pain and improving functional outcomes, with sustained effects observed at three-month follow-up. These results highlight the potential of cupping as a complementary or alternative approach in managing CNLBP, particularly among sedentary populations.

The significant reduction in pain intensity observed in the cupping group aligns with previous studies reporting that cupping enhances local circulation, reduces muscle tension, and activates endogenous analgesic mechanisms (Lauche et al., 2013; Al-Bedah et al., 2019). In contrast to standard care, which often requires extended adherence to achieve outcomes, cupping demonstrated earlier symptomatic relief, supporting its utility for patients seeking immediate improvement.

Functional disability, as measured by the Oswestry Disability Index, also improved significantly in the cupping group, suggesting that reduced pain translated into enhanced physical functioning. Improvements in quality of life (SF-36) further underscore the broader benefits of this intervention on daily activities and mental well-being. While both groups showed progress over time, the cupping group consistently outperformed the standard care group in key outcome domains.

The durability of benefits observed at the three-month follow-up suggests that cupping may contribute not only to acute symptom control but also to longer-term management of CNLBP. However, while promising, these outcomes should be interpreted with caution due to the limited duration of follow-up. Future studies with longer observation periods are warranted to evaluate the recurrence of symptoms and maintenance of therapeutic gains.

This study contributes to the growing body of evidence supporting the integration of non-pharmacological, patient-centered approaches into musculoskeletal pain management. Given the increasing reliance on digital workspaces and the associated rise in sedentary behavior, interventions like cupping therapy can offer accessible, low-risk treatment options tailored to the needs of modern workers.

Strengths and Limitations

The study's strengths include its randomized controlled design, use of validated outcome measures (VAS, ODI, SF-36), and a clearly defined target population. The single-blind design reduced assessment bias, and multiple follow-up points allowed for temporal analysis of treatment effects.

However, several limitations must be noted. First, the single-blind design did not eliminate all bias, as participants were aware of their intervention, which could have influenced subjective outcomes. Second, the relatively short follow-up period may not fully capture long-term recurrence or sustainability of benefits. Additionally, the exclusion of individuals with comorbidities may limit the generalizability of findings to broader clinical populations.

Implications for Practice

The results support the inclusion of cupping therapy as an adjunctive option in the management of CNLBP, particularly for patients seeking rapid relief with minimal side effects. Clinicians should consider patient preferences, contraindications, and availability of trained practitioners when integrating cupping into treatment protocols. Moreover, workplace wellness programs targeting computer users may benefit from incorporating such complementary therapies alongside ergonomic and physical activity interventions.

Conclusion

Cupping therapy demonstrated superior short-term efficacy in reducing pain and disability in patients with lumbar myofascial pain compared to standard care. While both interventions were beneficial, cupping provided faster symptom relief and greater functional improvement. An integrative approach combining both modalities may offer enhanced clinical outcomes.

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