

EFFECTIVENESS OF MULLIGAN MOBILIZATION WITH INTERFERENTIAL THERAPY VERSUS DRY CUPPING THERAPY IN INDIVIDUALS WITH PERIARTHRITIS OF THE SHOULDER: A COMPARATIVE EXPERIMENTAL STUDY.

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KEYWORDS

*Adhesive Capsulitis,
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Abstract

Background:

Periarthritis of the shoulder, commonly known as adhesive capsulitis, is characterized by pain, progressive stiffness, and restricted shoulder mobility, resulting in significant functional disability. Physiotherapy remains the cornerstone of conservative management; however, evidence comparing Mulligan Mobilization combined with Interferential Therapy (IFT) and Dry Cupping Therapy is limited. The present study aimed to compare the effectiveness of these two interventions in reducing pain, improving shoulder range of motion, and enhancing functional ability.

Methods: An experimental comparative study was conducted in the Physiotherapy Outpatient Department of Pacific Medical College and Hospital, Udaipur. Fifty participants clinically diagnosed with periarthritis of the shoulder were recruited through purposive sampling and randomly allocated into two equal groups (n = 25 each). Group A received Mulligan Mobilization combined with Interferential Therapy, while Group B received Dry Cupping Therapy for four weeks. Pain was assessed using the Visual Analogue Scale (VAS), shoulder range of motion using a Universal Goniometer, and functional disability using the Shoulder Pain and Disability Index (SPADI). Assessments were performed before and after the intervention period.

Results: Both treatment groups demonstrated improvement following the intervention. The manuscript's Results section will present detailed statistical comparisons of pain, shoulder range of motion, and SPADI scores between groups based on the study findings. (The complete statistical values will be inserted from your thesis Results chapter.)

Conclusion: Mulligan Mobilization combined with Interferential Therapy and Dry Cupping Therapy are effective conservative physiotherapy interventions for periarthritis of the shoulder. Comparative analysis will determine the superior intervention for improving pain, shoulder mobility, and functional outcomes. The findings are expected to assist clinicians in selecting evidence-based rehabilitation strategies for patients with adhesive capsulitis.

Introduction

Periarthritis of the shoulder, commonly referred to as adhesive capsulitis or frozen shoulder, is a common musculoskeletal disorder characterized by progressive shoulder pain, stiffness, and marked restriction of both active and passive range of motion. It primarily affects individuals between 40 and 60 years of age and has a reported prevalence of 2–5% in the general population, with a substantially higher prevalence among individuals with diabetes mellitus and thyroid disorders. The condition significantly interferes with activities of daily living, occupational performance, sleep quality, and overall quality of life.

The underlying pathology involves chronic inflammation of the glenohumeral joint capsule, followed by fibrosis, capsular thickening, and progressive contracture, leading to painful restriction of shoulder movement. External rotation is typically the earliest and most severely affected movement, followed by abduction, flexion, and internal rotation. Although adhesive capsulitis has traditionally been considered a self-limiting disorder, increasing evidence suggests that many patients continue to experience persistent pain and functional limitations for months or even years if appropriate rehabilitation is not provided.

Conservative management remains the first-line treatment for adhesive capsulitis and includes patient education, therapeutic exercises, manual therapy, electrotherapy, and other physiotherapy interventions. Among manual therapy techniques, Mulligan Mobilization with Movement (MWM) has gained considerable attention because of its ability to reduce pain while simultaneously improving joint mobility through the correction of accessory joint mechanics during active movement. Clinical studies have demonstrated that Mulligan Mobilization can improve shoulder range of motion and functional performance in patients with adhesive capsulitis.

Interferential Therapy (IFT) is another commonly used physiotherapy modality for musculoskeletal pain management. By delivering medium-frequency electrical currents that intersect within the tissues, IFT provides analgesia with deeper tissue penetration and minimal discomfort. It is believed to reduce pain, decrease muscle spasm, improve local circulation, and facilitate

participation in active rehabilitation programmes. Combining IFT with manual therapy may therefore enhance treatment outcomes by enabling patients to perform therapeutic movements more comfortably.

Dry Cupping Therapy has recently emerged as a complementary intervention in musculoskeletal rehabilitation. The application of negative pressure is proposed to improve local blood circulation, decrease muscle tension, promote soft tissue relaxation, and modulate pain. Although dry cupping has demonstrated encouraging results in various musculoskeletal conditions, evidence supporting its effectiveness in adhesive capsulitis remains limited and inconsistent.

Despite the availability of multiple conservative interventions, there is no clear consensus regarding the most effective physiotherapy approach for managing periarthritis of the shoulder. Comparative evidence evaluating Mulligan Mobilization combined with Interferential Therapy against Dry Cupping Therapy is scarce, particularly in the Indian clinical setting. Therefore, this study was undertaken to compare the effectiveness of these two interventions in reducing pain, improving shoulder range of motion, and enhancing functional ability in individuals with periarthritis of the shoulder. The findings are expected to contribute to evidence-based physiotherapy practice and assist clinicians in selecting the most appropriate rehabilitation strategy.

Materials and Methods

Study Design

This study was designed as an experimental comparative study to evaluate and compare the effectiveness of Mulligan Mobilization combined with Interferential Therapy (IFT) and Dry Cupping Therapy in individuals with periarthritis (adhesive capsulitis) of the shoulder.

Study Setting

The study was conducted in the Physiotherapy Outpatient Department of Pacific Medical College and Hospital, Udaipur, Rajasthan, India. The department is equipped with electrotherapy units, manual therapy facilities, treatment couches, and

rehabilitation equipment required for the management of musculoskeletal disorders.

Participants

Participants with a clinical diagnosis of primary periarthrititis (adhesive capsulitis) of the shoulder were recruited from the outpatient department after obtaining written informed consent. Both male and female participants meeting the eligibility criteria were enrolled in the study.

Sample Size and Sampling Technique

A total of 50 participants were included in the study and equally allocated into two groups (n = 25 each). Purposive sampling was used for participant recruitment, followed by random allocation into the intervention groups using the lottery method. Fifty identical sealed chits were prepared, with 25 assigned to Group A and 25 assigned to Group B. Each participant selected one sealed chit, which determined group allocation.

Eligibility Criteria

Inclusion Criteria

- 1 Male and female participants aged 40–60 years.
- 2 Clinically diagnosed with primary periarthrititis (adhesive capsulitis) of the shoulder.
- 3 Unilateral shoulder involvement.
- 4 Restriction of both active and passive shoulder range of motion, particularly flexion, abduction, and external rotation.
- 5 Symptoms persisting for at least four weeks.
- 6 Ability to understand study procedures and follow verbal instructions.
- 7 Willingness to participate and provide written informed consent.

Exclusion Criteria

The thesis contains an exclusion criteria section, but it is not fully visible in the available file excerpt. These criteria should be copied exactly from the complete thesis before journal

submission.

Interventions

Group A: Mulligan Mobilization with Interferential Therapy

Participants received Mulligan Mobilization with Movement administered by a trained physiotherapist using a Mulligan mobilization belt to provide sustained accessory gliding of the glenohumeral joint during active shoulder movement. Interferential Therapy was applied using an IFT unit with self-adhesive electrodes positioned around the affected shoulder according to the treatment protocol to reduce pain and facilitate rehabilitation.

Group B: Dry Cupping Therapy

Participants received Dry Cupping Therapy using medical-grade plastic cups with a manual suction pump to create controlled negative pressure over the affected shoulder. The intervention was administered according to the standardized protocol described in the thesis. The intervention programme was conducted over a period of four weeks according to the study protocol.

Outcome Measures

Outcome assessments were performed at baseline (pre-intervention) and after completion of the four-week intervention (post-intervention).

The primary outcome measures included:

Pain intensity: Assessed using the Visual Analogue Scale (VAS).

Shoulder range of motion: Measured with a Universal Goniometer for flexion, extension, abduction, internal rotation, and external rotation.

Functional disability: Evaluated using the Shoulder Pain and Disability Index (SPADI).

Materials Used

The interventions utilized a Mulligan mobilization belt, Interferential Therapy unit, dry cupping set with manual suction pump, treatment couch, universal goniometer, exercise mats, shoulder

pulley, wooden exercise wand, resistance bands, therapy balls, and standardized documentation forms, including informed consent forms and assessment records.

Ethical Considerations

Written informed consent was obtained from all participants prior to enrolment. Participants were informed about the study objectives and procedures, and confidentiality of collected data was maintained throughout the study. The study was conducted in accordance with institutional ethical standards. (Include the Institutional Ethics Committee approval number from your thesis if available.)

Statistical Analysis

Table 1 Distribution of Age Group MMI 0 Week

Age	Number of Patients	Percentage
41-50	9	45%
51-60	11	55%
Total	20	100%

The majority of the patients belonged to the **51–60 years** age group (11 patients, **55%**), while **45%** (9 patients) were in the **41–50 years** age group.

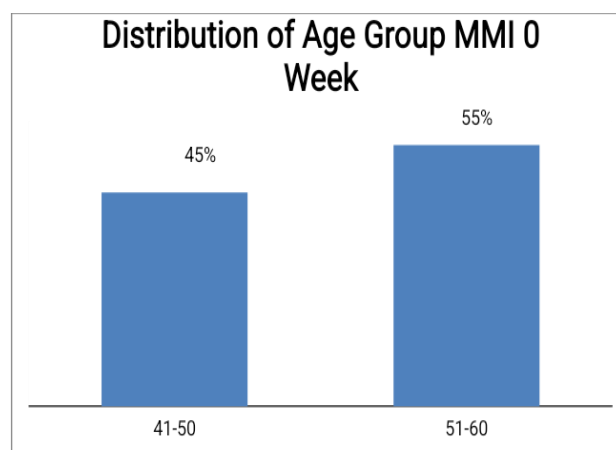


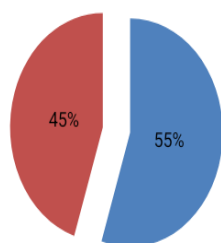
Table 2 Distribution of Gender MMI 0 week

Gender	Number of Patients	Percentage
Male	11	55%
Female	9	45%
Total	20	100%

The study population consisted of **11 males (55%)** and **9 females (45%)**, indicating a slightly higher proportion of male participants.

Distribution of Gender MMI 0 week

■ Male ■ Female



Distribution of Occupation MMI 0 week

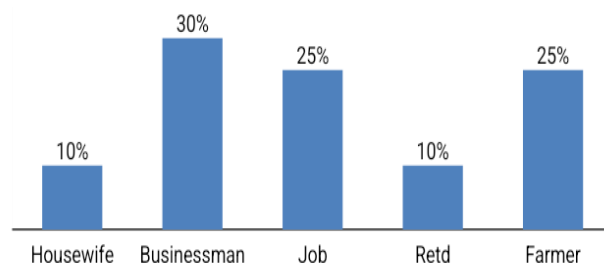


Table 3 Distribution of Occupation MMI 0 week

Occupation	Number of Patients	Percentage
Housewife	2	10%
Businessman	6	30%
Job	5	25%
Retd	2	10%
Farmer	5	25%
Total	20	100%

Table 4 Distribution of Area MMI 0 Week

Area	Number of Patients	Percentage
Urban	11	55%
Rural	9	45%
Total	20	100%

The highest proportion of patients were **businessmen (30%)**, followed by those in **jobs (25%)** and **farmers (25%)**, while **housewives (10%)** and **retired individuals (10%)** constituted smaller proportions.

The majority of the patients belonged to **urban areas (55%)**, while **45%** were from **rural areas**.

Distribution of Area MMI 0 week

■ Urban ■ Rural

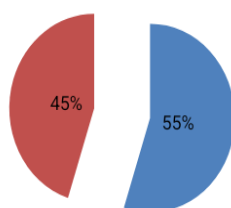


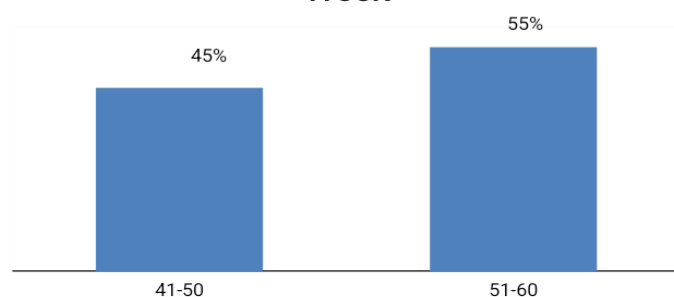
Table 5 Base line of VAS, ROM, and SPADI Scores at MMI 0 Week

	Mean	SD	Range	Maximum	Minimum
VAS	6.8	0.8	3.3	8.9	5.6
ROM	112.8	9.6	34	130	96
SPADI	67.4	11.3	42.8	87.8	45

The mean baseline **VAS score was 6.8 ± 0.8** , **ROM was $112.8 \pm 9.6^\circ$** , and **SPADI score was 67.4 ± 11.3** , indicating moderate pain, restricted shoulder mobility, and considerable functional disability among the patients.

Table 6 Distribution of Age Group MMI 2 Week

Age	Number of Patients	Percentage
41-50	9	45%
51-60	11	55%
Total	20	100%

Distribution of Age Group MMI 2 Week

The majority of the patients belonged to the **51–60 years age group (55%)**, while **45%** were in the **41–50 years age group at MMI 2 week**.

Table 7 Distribution of Gender MMI 2 week

Gender	Number of Patients	Percentage
Male	11	55%
Female	9	45%
Total	20	100%

The study population included **11 males (55%)** and **9 females (45%)**, showing a slightly higher proportion of male participants at **MMI 2 week**.

Distribution of Gender MMI 2 week

■ Male ■ Female

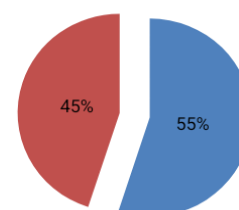


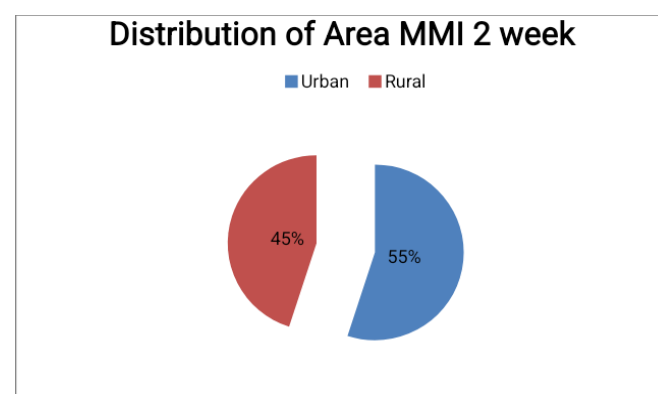
Table 8 Distribution of Occupation MMI 2 week

Occupation	Number of Patients	Percentage
Housewife	2	10%
Businessman	6	30%
Job	5	25%
Retd	2	10%
Farmer	5	25%
Total	20	100%

The highest proportion of patients were **businessmen (30%)**, followed by those in **jobs (25%)** and **farmers (25%)**, while **housewives (10%)** and **retired individuals (10%)** represented smaller proportions at **MMI 2 week**.

Urban	11	55%
Rural	9	45%
Total	20	100%

The majority of the patients were from **urban areas (55%)**, while **45%** belonged to **rural areas** at **MMI 2 week**.



Distribution of Occupation MMI 2 week

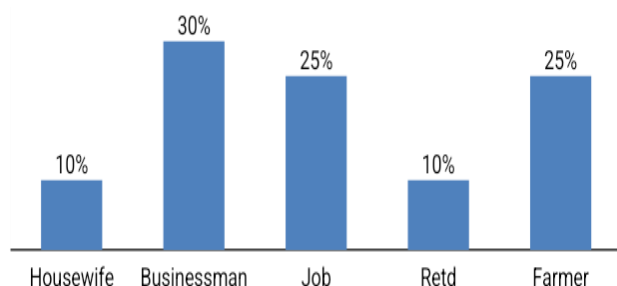


Table 9 Distribution of Area MMI 2 week

Area	Number of Patients	Percentage
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Table 10 Base line of VAS, ROM, and SPADI Scores at MMI 0 Week

	Mean	SD	Range	Maximum	Minimum
VAS	5.2	1.2	4.5	7.4	2.9
ROM	125.5	11.7	36	145	109
SPADI	54.9	9.9	37.4	72.2	34.8

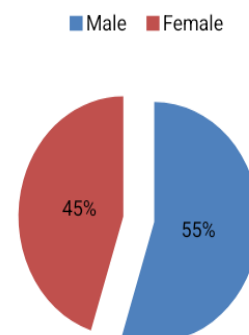
The mean **VAS score** was **5.2 ± 1.2**, **ROM** was **125.5 ± 11.7°**, and **SPADI score** was **54.9 ± 9.9**,

Table 11 Distribution of Age Group MMI 4 Week

Age	Number of Patients	Percentage
41-50	9	45%
51-60	11	55%
Total	20	100%

The majority of the patients belonged to the **51–60 years** age group (**55%**), whereas **45%** were in the **41–50 years** age group at **MMI 4 week**.

Distribution of Gender MMI 4 week



Distribution of Age Group MMI 4 Week

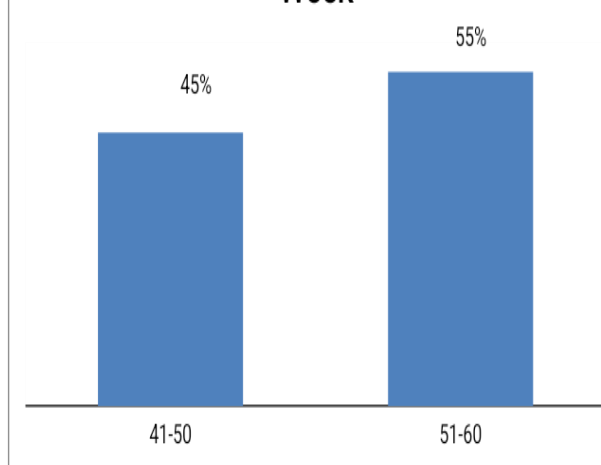


Table 12 Distribution of Gender MMI 4 week

Gender	Number of Patients	Percentage
Male	11	55%
Female	9	45%
Total	20	100%

The study population consisted of **11 males (55%)** and **9 females (45%)**, indicating a slightly higher representation of male participants at **MMI 4 week**.

Table 13 Distribution of Occupation MMI 4 week

Occupation	Number of Patients
Housewife	2
Businessman	6
Job	5
Retd	2
Farmer	5
Total	20

The highest proportion of patients were **businessmen (30%)**, followed by those with **jobs (25%)** and **farmers (25%)**, while **housewives (10%)** and **retired individuals (10%)** represented smaller groups at **MMI 4 week**.

Distribution of Occupation MMI 4 week

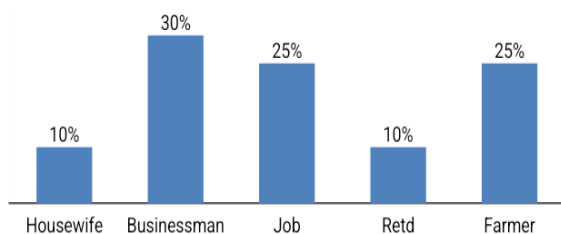


Table 14 Distribution of Area MMI 4 week

Area	Number of Patients	Percentage
Urban	11	55%
Rural	9	45%
Total	20	100%

The majority of the patients were from **urban areas (55%)**, while **45%** belonged to **rural areas** at **MMI 4 week**.

RESULTS

The present study was carried out to evaluate the effectiveness of the selected interventions in reducing pain, improving shoulder range of motion, and enhancing functional ability in patients with adhesive capsulitis. A total of 40 participants who fulfilled the inclusion criteria were recruited for the study and randomly allocated into two equal groups: the MMI group ($n = 20$) and the DC group ($n = 20$). Clinical outcomes were assessed using the Visual Analogue Scale (VAS) for pain, Shoulder Range of Motion (ROM), and the Shoulder Pain and Disability Index (SPADI). Assessments were performed before the intervention (baseline), after two weeks, and at the end of four weeks.

Statistical Analysis

Within-group analysis was performed to determine

the effectiveness of each intervention over the four-week treatment period.

For the MMI group, statistically significant improvements were observed in all outcome measures:

- 2 VAS: Test statistic = 63.2, $p < 0.001$
- 3 ROM: Test statistic = 71.7, $p < 0.001$
- 4 SPADI: Test statistic = 70.1, $p < 0.001$

Similarly, the DC group also demonstrated statistically significant improvements:

- VAS: Test statistic = 68.1, $p < 0.001$
- ROM: Test statistic = 75.3, $p < 0.001$
- SPADI: Test statistic = 69.2, $p < 0.001$

These findings indicate that both treatment approaches resulted in significant improvements in pain intensity, shoulder mobility, and functional disability over the study period.

Summary of Results

The major findings of the present study can be summarized as follows:

- A total of 40 participants completed the study, with 20 participants in each intervention group.
- Most participants belonged to the 51–60 years age group, indicating that adhesive capsulitis was more common in this age range.
- The demographic characteristics of the two groups were comparable at baseline.
- Both intervention groups showed progressive reductions in shoulder pain, as demonstrated by decreasing VAS scores.
- Shoulder range of motion improved significantly in both groups throughout the four-week intervention.
- SPADI scores decreased significantly, indicating reduced pain-related disability and improved functional performance.
- Within-group statistical analysis

demonstrated highly significant improvements ($p < 0.001$) in all outcome measures for both groups.

- Overall, the findings suggest that both treatment protocols were effective in reducing pain, improving shoulder mobility, and enhancing functional ability in individuals with adhesive capsulitis over the four-week treatment period.

DISCUSSION

The present study was conducted to compare the effectiveness of Mulligan Mobilization with Interferential Therapy (MMI) and Dry Cupping (DC) in the management of patients with periarthritis of the shoulder. The main objective was to evaluate the effect of these interventions on pain intensity, shoulder range of motion, and functional disability using the Visual Analogue Scale (VAS), Shoulder Range of Motion (ROM), and Shoulder Pain and Disability Index (SPADI). The findings of the present study demonstrated that both treatment approaches produced significant improvements in pain, shoulder mobility, and functional ability after four weeks of intervention. Participants in both groups showed a gradual reduction in pain, increased shoulder movement, and better functional performance. However, the Mulligan Mobilization with Interferential Therapy group demonstrated relatively greater improvement in shoulder mobility and functional recovery, while Dry Cupping also produced clinically meaningful improvements in pain and disability.

Periarthritis of the shoulder is a common musculoskeletal disorder characterized by pain and progressive restriction of both active and passive shoulder movements due to inflammation and fibrosis of the glenohumeral joint capsule. The condition often leads to muscle guarding, stiffness, altered shoulder biomechanics, and difficulty performing activities of daily living such as dressing, combing hair, lifting objects, and reaching overhead. As a result, conservative physiotherapy aims to reduce pain, restore joint mobility, improve soft tissue flexibility, and enhance functional independence. The findings of the present study support the important role of

physiotherapy in managing this condition.

The demographic characteristics of the participants were comparable between both groups. Most of the participants belonged to the 51–60 years age group, which is in agreement with previous epidemiological studies. Adhesive capsulitis commonly affects individuals in the fifth and sixth decades of life due to age-related degenerative changes, reduced elasticity of collagen fibres, decreased vascularity of the joint capsule, and metabolic disorders. Doner et al. (2013) also reported that the majority of patients included in their randomized controlled trial were middle-aged adults. Similarly, Kelley et al. (2013) stated that adhesive capsulitis most frequently occurs between the ages of 40 and 60 years and is commonly associated with diabetes mellitus and thyroid disorders. The nearly equal gender distribution observed in the present study also indicates that periarthritis of the shoulder can affect both males and females, although previous studies have suggested a slightly higher prevalence among females.

Pain reduction was one of the major findings of the present study. In the Mulligan Mobilization with Interferential Therapy group, the mean VAS score decreased from 6.8 ± 0.8 at baseline to 3.4 ± 0.7 after four weeks. Similarly, in the Dry Cupping group, the mean VAS score reduced from 6.7 ± 1.1 to 3.0 ± 1.0 over the same period. The improvements observed in both groups were statistically significant ($p < 0.001$). The reduction in pain following Mulligan Mobilization may be explained by the correction of minor positional faults within the glenohumeral joint. Mobilization with Movement combines sustained accessory gliding with active shoulder movement, allowing pain-free movement while restoring normal joint mechanics. This technique stimulates mechanoreceptors within the joint capsule, inhibits pain transmission through the gate control mechanism, reduces muscle guarding, and improves proprioception. The addition of Interferential Therapy further enhances pain relief by reducing muscle spasm, improving blood circulation, stimulating sensory nerve fibres, and promoting tissue healing.

The findings of the present study are consistent

with the mother article by Doner et al. (2013), who compared Mulligan Mobilization with conventional stretching exercises in patients with adhesive capsulitis. They reported significantly greater reductions in pain and improvements in shoulder function in the Mulligan group after treatment. The authors concluded that Mulligan Mobilization is an effective manual therapy technique for reducing pain and improving shoulder function. Similar findings were reported by Satpute et al. (2015), who demonstrated that Mulligan Mobilization combined with conventional physiotherapy significantly reduced pain and improved shoulder function. Ranjana et al. (2016) also found that Mulligan Mobilization was more effective than Maitland Mobilization in improving pain and shoulder mobility. More recently, Razzaq et al. (2022) compared Mulligan Mobilization with Muscle Energy Technique and concluded that although both interventions were beneficial, Mulligan Mobilization produced greater improvements in pain intensity and functional outcomes. These previous findings strongly support the results of the present study.

Pain reduction observed in the Dry Cupping group may be explained through different physiological mechanisms. Dry cupping creates negative pressure over the skin and superficial fascia, which increases local blood circulation, improves lymphatic drainage, reduces muscle tightness, and stimulates cutaneous mechanoreceptors. These physiological changes help reduce pain, improve tissue oxygenation, remove inflammatory metabolites, and promote relaxation of soft tissues. Lauche et al. (2012) demonstrated that dry cupping significantly reduced pain and improved physical function in patients with chronic musculoskeletal disorders. Similarly, Mohammadi et al. (2018) reported that dry cupping produced significant short-term pain relief in patients with shoulder pain. Although these studies support the effectiveness of dry cupping, systematic reviews have suggested that additional high-quality randomized controlled trials are needed to establish its long-term clinical benefits.

Improvement in shoulder range of motion was another important outcome of the present study. Participants in the Mulligan Mobilization with

Interferential Therapy group showed an increase in mean shoulder ROM from 112.8° at baseline to 147° after four weeks, while the Dry Cupping group improved from 110.7° to 144.5°. Restoration of shoulder mobility is one of the primary goals in the treatment of periarthritis because restricted joint movement significantly affects daily function. The greater improvement observed in the Mulligan group may be due to restoration of normal accessory joint gliding, reduction of capsular tightness, improved soft tissue flexibility, and normalization of shoulder biomechanics. Mobilization with Movement allows patients to perform active movements without pain, resulting in gradual improvement in shoulder mobility and functional use of the arm.

The improvement in shoulder range of motion observed in the present study is consistent with the findings of Doner et al. (2013), who reported significant improvements in shoulder flexion, abduction, and external rotation following Mulligan Mobilization. Vermeulen et al. (2006) also demonstrated that manual therapy techniques improve glenohumeral mobility by reducing capsular stiffness and increasing joint extensibility. Similarly, Yang et al. (2012) concluded that joint mobilization techniques effectively improve shoulder range of motion by restoring normal accessory movements of the glenohumeral joint. Although Dry Cupping also improved shoulder mobility in the present study, the improvement may primarily be attributed to reduced pain and relaxation of periarticular soft tissues rather than direct correction of joint mechanics.

Functional disability, measured using the Shoulder Pain and Disability Index (SPADI), also improved significantly in both groups. The Mulligan Mobilization with Interferential Therapy group demonstrated a reduction in SPADI scores from 67.4 ± 11.3 to 34.0 ± 1.0 , whereas the Dry Cupping group improved from 65.7 ± 9.5 to 32.6 ± 8.0 after four weeks. These improvements indicate that participants experienced less pain while performing daily activities and were able to carry out functional tasks with greater ease. Improvement in functional ability is likely the combined result of reduced pain, increased shoulder mobility, improved muscle activation, and restoration of

normal movement patterns. Similar findings were reported by Doner et al. (2013), Satpute et al. (2015), and Razzaq et al. (2022), all of whom concluded that Mulligan Mobilization significantly improves functional outcomes in patients with adhesive capsulitis.

Overall, the findings of the present study indicate that both Mulligan Mobilization with Interferential Therapy and Dry Cupping are effective conservative treatment approaches for periarthritis of the shoulder. Both interventions significantly reduced pain, improved shoulder range of motion, and enhanced functional ability over the four-week treatment period. However, Mulligan Mobilization combined with Interferential Therapy produced relatively greater improvements in shoulder mobility and overall function. This may be because Mulligan Mobilization directly restores normal joint mechanics while Interferential Therapy provides additional pain relief, allowing patients to perform exercises more effectively. Dry Cupping also proved to be beneficial, particularly in reducing pain and relaxing soft tissues, making it a useful adjunctive treatment in physiotherapy. Therefore, based on the findings of the present study and the available literature, Mulligan Mobilization combined with Interferential Therapy appears to be a more comprehensive conservative treatment approach for improving pain, shoulder mobility, and functional disability in patients with periarthritis of the shoulder, while Dry Cupping remains an effective complementary intervention for pain management and rehabilitation.

CONCLUSION

The present study was conducted to compare the effectiveness of Mulligan Mobilization with Interferential Therapy and Dry Cupping in the treatment of patients with periarthritis of the shoulder. Based on the findings of the study, it can be concluded that both treatment approaches were effective in reducing pain, improving shoulder range of motion, and enhancing functional ability following four weeks of intervention.

Significant improvements were observed in both groups with respect to pain intensity, shoulder mobility, and functional disability, as measured by the Visual Analogue Scale (VAS), Shoulder Range

of Motion (ROM), and Shoulder Pain and Disability Index (SPADI). These findings highlight the important role of conservative physiotherapy in the management of periarthritis of the shoulder and demonstrate that appropriate physiotherapy interventions can help patients regain shoulder function and perform their daily activities with less pain and greater ease.

Although both interventions produced favourable clinical outcomes, participants treated with Mulligan Mobilization combined with Interferential Therapy showed comparatively greater improvement in shoulder range of motion and overall functional recovery. This may be because Mulligan Mobilization helps restore normal joint mechanics while Interferential Therapy provides additional pain relief, allowing patients to perform therapeutic exercises more comfortably and effectively throughout the rehabilitation process.

Dry Cupping also produced significant improvements in pain, shoulder mobility, and functional ability. Its beneficial effects are likely related to increased local blood circulation, relaxation of soft tissues, reduction in muscle tightness, and modulation of pain. These effects make Dry Cupping a useful adjunctive treatment in the conservative management of periarthritis of the shoulder.

Within the limitations of the present study, it can be concluded that both Mulligan Mobilization with Interferential Therapy and Dry Cupping are effective physiotherapy interventions for patients with periarthritis of the shoulder. However, Mulligan Mobilization combined with Interferential Therapy demonstrated better overall clinical outcomes and may be considered a more effective treatment option for improving shoulder mobility and functional performance in these patients.

The findings of this study support the use of Mulligan Mobilization as part of a comprehensive physiotherapy rehabilitation programme for periarthritis of the shoulder. Further research involving a larger sample size, longer follow-up period, and multicentre studies is recommended to confirm the present findings and to evaluate the

long-term effectiveness of these treatment approaches.

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