ijlpr 2023; doi 10.22376/ijlpr.2023.13.3.L134-L144

International Journal of Life science and Pharma Research

ISSN 2250-0480

Research Article

Gong's Mobilization and Myofascial Release Technique in Adhesive Capsulitis

Effectiveness of Gong's Mobilization Over Myofascial Release Technique in Patients with Adhesive Capsulitis.

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Abstract: Adhesive Capsulitis, also known as frozen shoulder, is a severe condition of the shoulder characterized by pain, severe stiffness and restriction of movements in the shoulder joint. We aim to evaluate the effect of Gong's Mobilization with conventional therapy versus the Myofascial release technique with conventional treatment in subjects with Adhesive capsulitis; Objectives that were assessed are Shoulder pain, disability and range of motion. Thirty subjects completed the study. The subjects were randomly assigned into two groups. Group A Received Gong's Mobilization with conventional therapy, and Group B received Myofascial Release technique with traditional treatment. Both groups received ten intervention sessions (5 sessions/week) in 2 weeks. Outcome Parameters: Pain intensity was measured by Visual Analogue Scale (VAS), ROM of the shoulder by universal goniometer & functional disability by shoulder pain and disability index (SPADI). These parameters were measured pre-intervention and after ten sessions of intervention. Analysis using paired t-test and independent-test found no statistically significant difference ($p<0.05$) between Gong's mobilization with the conventional therapy group and Myofascial release technique with the traditional group of therapy on improving pain, ROM and decreasing the functional deficit. Gong's mobilization with conventional therapy and Myofascial release with the standard treatment technique with conventional therapy is equally effective in improving pain and ROM and decreasing the functional deficit.

Keywords: Gong's mobilization, Myofascial release technique, conventional therapy, adhesive capsulitis, pain, ROM, functional deficit.

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Received On 8 August, 2022

Revised On 27 January, 2023

Accepted On 7 February, 2023

Published On 1 May, 2023

Funding This research did not receive any specific grant from any funding agencies in the public, commercial or not for profit sectors.

Citation Tilling Challey, Abhijit Dutta ,Abhijit Kalita and Hormot Ryniaw Pyngrope , Effectiveness of Gong's Mobilization Over Myofascial Release Technique in Patients with Adhesive Capsulitis..(2023).Int. J. Life Sci. Pharma Res.13(3), L134-L144 http://dx.doi.org/10.22376/ijlpr.2023.13.3.L134-L144

1. INTRODUCTION

Adhesive Capsulitis is also known as frozen shoulder. It is a condition that causes discomfort, stiffness, and loss of mobility in the shoulder.[1] Dupley [1872] was the first to coin the phrase Humeroscapular Periarthritis to describe the pain and stiffness of the shoulder joint, whereas Codman [1934] coined the term Frozen Shoulder [2], and Nevasier was the first to utilize the term Frozen Shoulder. Neviaser further expanded upon this concept in 1945 and introduced the term adhesive capsulitis to refer to a thickening of the glenohumeral joint capsule. Adhesive capsulitis is classified as either primary (idiopathic) or secondary (non-idiopathic). Despite the lack of clear diagnostic criteria and hence the risk of over-diagnosis, adhesive capsulitis is thought to affect between 2% and 5% of the general population,[4] with a cumulative incidence of 2.4 per 1000 person-years. Women have a 1.6 to 4-fold higher incidence than males. [5,6] Middle-aged people are the most commonly affected, generally in their fifth to seventh decades of life.[7,8] Although recurrence in the same shoulder is uncommon, up to 20% of people experience identical symptoms in the opposite shoulder.[9,10] Bilateral simultaneous involvement occurs in 14% of patients, with 80% experiencing a recurrence of symptoms within five years.[11] Diabetes mellitus is the most common condition associated with a frozen shoulder. It is estimated that the combined prevalence of a diabetic predisposition and a frozen shoulder is as high as 71.5 percent. As per Neviaser,[12], the natural disease progression of adhesive capsulitis has been broken down into four stages. These stages are divided based on clinical presentation and arthroscopic appearance.[1,12] Stage I (inflammatory): The patient complains of pain with active and passive range of motion. The content of motion is still well maintained. These symptoms usually last no more than ten weeks. Arthroscopically, there is evidence of synovitis only, but there are no adhesions or contractures inside the joint.[12,13] Stage 2 (freezing): This stage lasts anywhere from 3 to 9 months and is characterised by nocturnal pain, especially when the patient is resting on the affected side, as well as a considerable loss of both active and passive ROM. Stage 3 (frozen or stiffness): Stage III is marked by a significant global range of motion decrease. At the extremes of active and passive motion, there is pain. This stage is also known as the maturation stage. Here the synovitis of the joint is resolved, but the axillary fold is obliterated, indicating significant adhesions.[12,13] This stage lasts between 3 to 9 months. Gong's mobilization technique is end range mobilization technique in which a corrective Antero-Posterior glide is applied with the shoulder in the dynamic position followed by distraction and performing restricted movement. Then oscillation at Maitland's grades 3 and 4 is given with sustained stretching. Thus, it incorporates both distractions as well as Maitland's technique. [14] Gong's mobilization is helpful in clinical settings because of its immediate effects. It aims to decrease pain and improve the range of motion.[15,16] Gong's mobilization has been found to have more significant evidence in increasing the range of motion. Manish Shrestha and Diker Dev Joshi conducted a pilot study where it was found that the Gong's mobilization is more effective in improving ROM, pain and disability.[17] Myofascial Release, developed by John Barnes, is a very effective, gentle, and safe method of soft tissue mobilization that involves applying gentle, sustained pressure to the subcutaneous and myofascial connective tissue.[18] A sustained pressure is applied into the tissue barrier; after 90 to 120 seconds, the tissue will undergo histological length changes allowing the first release to be felt. The therapist follows the release into a new tissue barrier and holds. After a few releases, the tissues will become softer and more pliable. (Barnes 1997). In a frozen shoulder, the trigger points are commonly seen in the subscapularis, supraspinatus, infraspinatus,[19] pectoralis major and minor, and deltoid muscle.[20] Neha B et al. conducted a study where it was found that the Myofascial release is more effective in improving shoulder range of motion and pain and disability in patients with adhesive capsulitis.[18] Studies have shown that Gong's mobilization and myofascial release technique effectively increased the range of motion, reduced pain and thus improved function. But there needs to be more evidence where the comparative effect of Gong's mobilization and myofascial release technique in adhesive capsulitis have been studied. Therefore, this study is designed to determine the relative effects of Gong's mobilization vs Myofascial release technique in subjects with adhesive capsulitis.

2. METHODOLOGY

A comparative study was conducted for six months in physiotherapy OPD at Assam Down Town University. A total of 30 who met inclusion criteria were taken into the study and divided through simple random technique into two groups, 15 members in group A (Gong's mobilization) and 15 in group B (Myofascial release technique). Both groups gave interventions five days a week for two weeks. The outcomes of the interventions were measured using the Visual Analogue Scale (VAS) to measure pain, a Goniometer to estimate the range of motion, and functional disability was measured using Shoulder Pain and Disability Index (SPADI).

3. MATERIALS REQUIRED

1. Consent form–A signed consent form from the patients to allow them patients to be included in the study.
2. VAS (visual analogue scale).
3. Goniometer.
4. Treatment Couch.
5. Chair and a sitting stool.
6. Pen and paper.

4. SAMPLING CRITERIA

4.1. Inclusion criteria

This study includes both males and females in the age group between 40-70 years, diagnosed by a clinician with adhesive capsulitis, bilateral adhesive capsulitis, diagnosed with diabetic adhesive capsulitis, no history of shoulder surgeries to the affected shoulder, the participants willing to participate in the study.

4.2. Exclusion criteria

History of surgery on the shoulder, Painful, stiff shoulder after severe trauma, Inflammatory diseases such as rheumatoid arthritis and malignancies in the shoulder region, Fracture in and around the shoulder joint, Rotator cuff rupture and the participants not willing to participate in the study.

5. STATISTICAL TOOL

The analysis was performed using the software called IBM SPSS Statistics 26. (SPSS: Statistical Package for Social Sciences).

Independent Measures

Gong's mobilization with Conventional therapy and Myofascial Release Technique with conventional treatment.

Dependent Measures

1. VAS
2. Range of motion.
3. SPADI

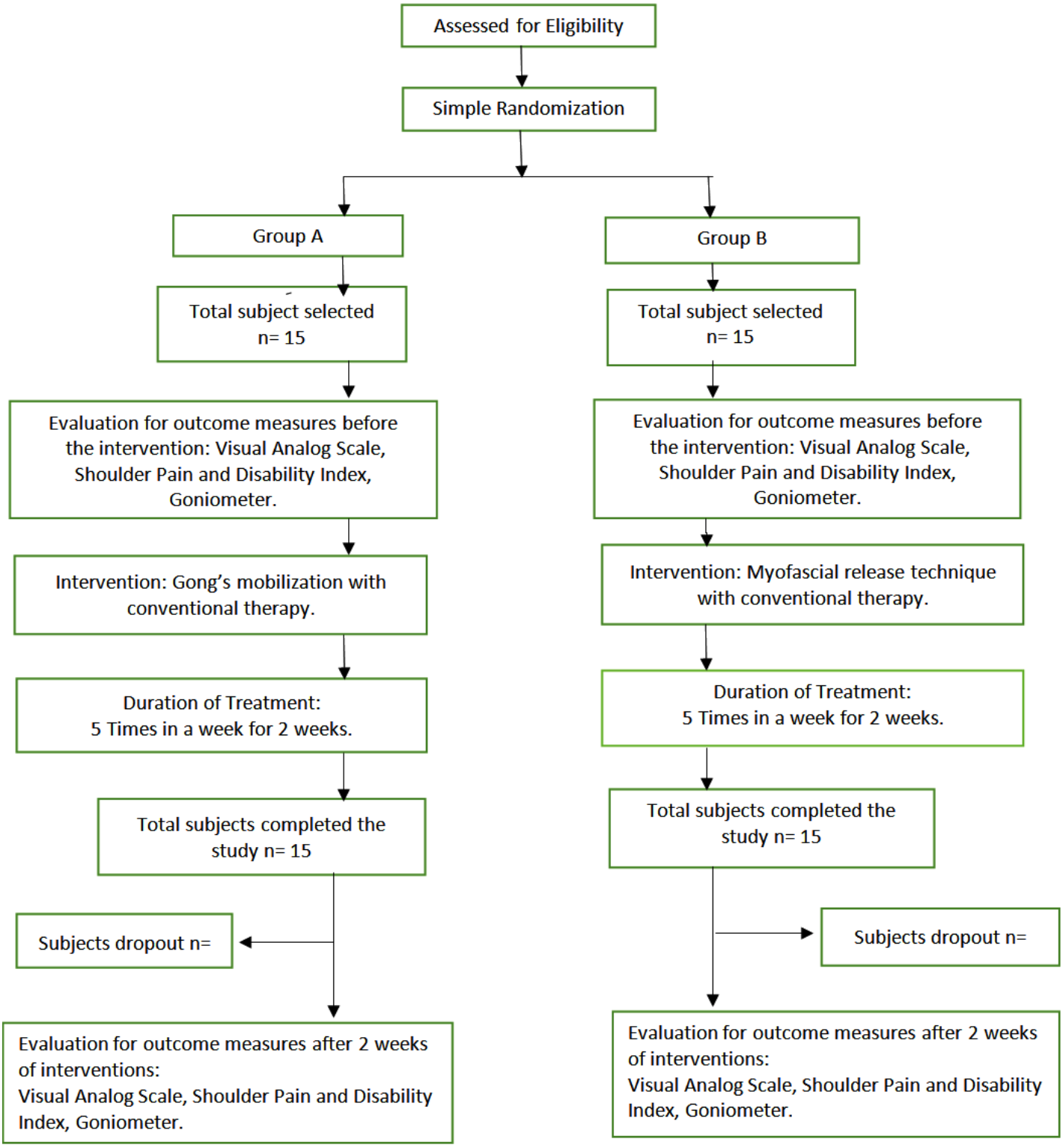

Fig 1: Study flow diagram

6. STUDY PROCEDURE

Ethics committee clearance was obtained from Assam downtown University with Memo number Adtu/Ethics/stdnt-lett/2022/36 on 24 June 2022. A known diagnosis of adhesive capsulitis referred by a physician meeting the inclusion criteria was recruited for the study. Those fulfilling these criteria were explained in detail in the study layout, and written informed consent was obtained from the willing subjects. The subjects were assigned into Group A & Group B. Group-A (Gong's mobilization with conventional therapy) and Group-B (Myofascial release Technique with traditional medicine) by Simple random technique, consisting of 15 subjects in each group. For each subject, demographic data

were collected, and a Pre-test and Post-test were carried out for both Group A and Group B by VAS for assessing pain, a goniometer for assessing glenohumeral ROM and SPADI for evaluating disability. All the subjects received the intervention for six therapy sessions, every alternate day lasting two weeks.

Group A (Gong's Mobilization): The treatment begins with moist heat for 10 minutes, Gong's mobilization with conventional therapy and ultrasound for 8 minutes. The total treatment time was 45 minutes once a day for six days per week for two weeks.

Moist Heat Fomentation: The patient is made to sit comfortably on a chair. A hydro collator pack is heated, wrapped in a towel and placed on the affected side of the shoulder for about 10 minutes.

7. GONG'S MOBILIZATION

7.1. In side-lying position

The subject was positioned in a side-lying position with the affected shoulder joint upward and shoulder abducted at 90 degrees. The therapist kept the subject's elbow joint at 90 degrees with one hand, placed his elbow below the subject's elbow joint, and pressed the humerus head from anterior to posterior with the other hand. Then, the therapist held the vertical axis of the humerus steady by maintaining the shoulder abduction and the elbow at 90 degrees and raised the therapist's own body while slightly pulling on the articular capsule of the shoulder joint. This slight pulling of the articular capsule was maintained for 10–15 seconds and then relaxed for 5 seconds. This technique was performed for about 2 to 3 minutes. After extending the articular capsule by slightly pulling it, the therapist used one hand to press the shoulder joint from anterior to posterior to prevent vertical pulling of the opened somewhat articular capsule and the humerus. The therapist supported the elbow with the other hand and performed shoulder medial rotation. Then, to increase ROM, oscillation at Maitland's grades 3 and 4 will be served, followed by sustained stretching at grade 4 for about 7 seconds. Figure 2

7.2. In a high sitting position

The subject sat on a knee-high chair with the spine in a neutral position and comfortably extended both arms. The therapist stood on the side opposite the affected side. The therapist pushed the scapula of the affected side in a posterior-to-anterior direction with one hand and caused the humeral head to move in an anterior-to-posterior direction parallel to the joint plane with the other hand. Simultaneously, the subject was asked to quickly and powerfully perform shoulder abduction with elbow flexion and with the palm facing inside and the back of the hand facing outside. During this time, the hands of the therapist kept facing the humeral head with the palm's long axis along with the humerus's long axis. The therapist followed the subject, performing shoulder abduction at the same speed while maintaining a little distraction and adding acceleration in the end range. The glide was sustained during slow active shoulder movements to the end of the pain-free range and released after return to the starting position. The procedure will be performed in one set of 10 repetitions, with 1-minute rest between sets figure 3.

Fig 2: Gong's Mobilization in a side-lying position

Fig 3: Gong's Mobilization in a side high sitting position.

Group B (Myofascial release technique): The treatment begins with moist heat for 10 minutes, the Myofascial release technique with conventional therapy and ultrasound for 8 minutes. The total treatment time was 45 minutes once a day for six days per week for two weeks.

MFR for Subscapularis: Therapist stood by the side of the involved shoulder. One hand will be placed just above the lateral border of the scapula in the axillary region, and the other hand will be used to stabilize the subject's arm. Traction is applied on the arm to abduct the scapula adequately to increase the accessibility of the subscapularis TrPs.[21] The subscapularis is palpated in the axilla using a pincer grasp by going deep till reaching the anterior aspect of the scapula. The identification of the muscle was confirmed by feeling the contraction when the subject internally rotated the shoulder. After identification, the trigger points were treated with myofascial release, utilising sustained manual pressure and slow, deep strokes to the subscapularis muscle for 7 minutes.[22] Figure 4

MFR for pectoralis major: Patient is positioned in the supine lying with shoulder flexed up to 90 degrees of abduction and approximately 30 degrees of flexion in the horizontal plane to avoid friction. The therapist stands at a 45-degree angle to the patient. The therapist grasps the pectoralis significant muscle firmly between the thumb and fingers and gently lifts and takes it away from the thorax. The movement can be directed towards the caudal-cephalad and medial–lateral. Figure 5

MFR for Supraspinatus: The participants were in a high sitting position with the arm adducted. The therapist palpated with a pincer grip one finger above the spine of the scapula and in the space between the scapula and clavicle. Figure 6

MFR for Infraspinatus: The participant is in a high sitting position with the arm adducted; the therapist was behind the patient and by using flat palpation, two fingers below the medial portion of the spine of the scapula and three fingers above the inferior angle of the scapula. Figure 7.

Fig 4: Myofascial release for Subscapularis.

Fig 5: Myofascial release for pectoralis major.

Fig 6: Myofascial release for Supraspinatus.

Fig 7: Myofascial release for Infraspinatus.

7.3. CONVENTIONAL THERAPY

Conventional physiotherapy was given as a standard intervention for both groups. In addition, a hot moist pack, Ultrasound and shoulder mobility exercises (Forward shoulder flexion and extension, Shoulder abduction and adduction, Shoulder shrugging, Shoulder Internal and external rotations, pendular movements, towel stretch and finger ladder exercises) were given as conventional therapy.

7.4. OUTCOME MEASURES

SPADI: Shoulder Pain and Disability Index for assessment of functional ability, [23] VAS (Visual Analog Scale for assessing pain.),[24] Goniometer: For assessing glenohumeral active and passive ROM.[25] were used as outcome measures to evaluate pain, disability and range of motion.

8. DATA ANALYSIS AND INTERPRETATION

8.1. RESULTS AND OBSERVATIONS

Table 1: Demographic Representation of data

	Group A	Group B
Minimum	42.00	42.00
Maximum	70.00	62.00
Age (Mean ± SD)	53.13 ± 7.18	52.73 ± 5.83

In the study, 30 subjects were randomly selected and then allocated to Groups A and B. In Group A, the mean age was 53.134 years ranging from 42 to 70. In Group B, the mean age was 52.73, ranging from 42 to 62.

Table 2: Distribution of the patients according to their age

Age	Group A		Group B	
	Frequency	Per cent	Frequency	Per cent
40 – 45 Years	2	13.3	2	13.3
45 - 50 Years	2	13.3	2	13.3
50-55 Years	6	40.0	5	33.3
55-60 Years	3	20.0	5	33.3
60 -65 Years	1	6.7	1	6.7
65 – 70 Years	1	6.7	0	0.0
Total	15	100.0	15	100.0

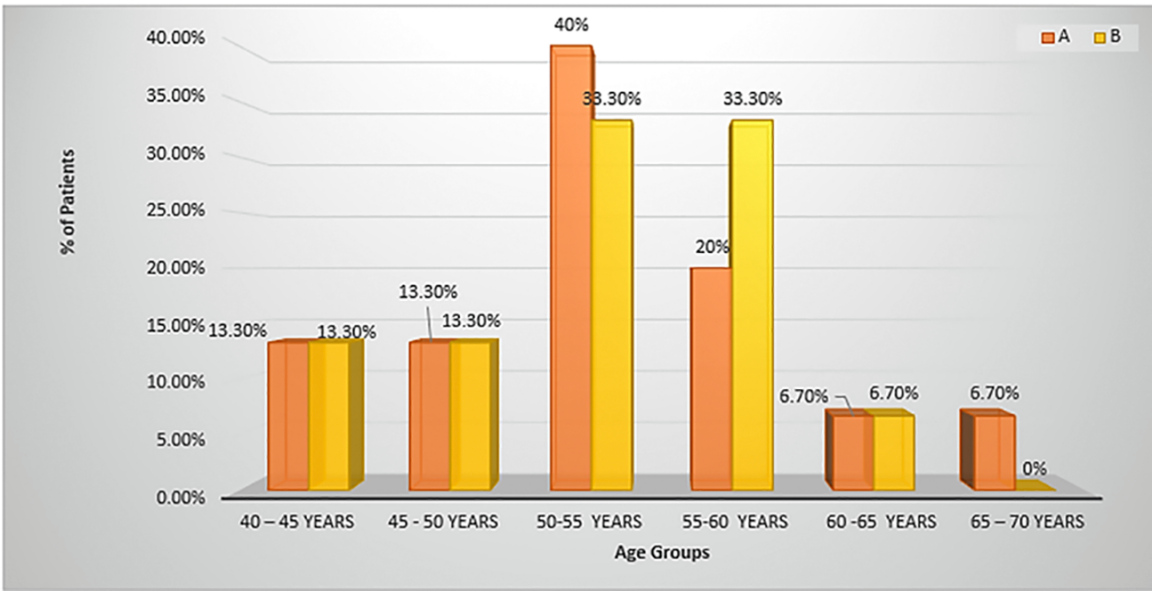

Fig 8: Age distribution of the patients in Group A and Group B

The above Bar Graph shows age wise distribution of the participants. The maximum number of participants, i.e. six, are seen in the age group of 50-55 years of age. 2 are seen both in the age group of 40-45 and 45-50 and in both the age group of 60-65 and 65-70, 1 each is seen.

Table 3: Distribution of the patients according to their gender:

Gender	Group A		Group B	
	Frequency	Percent	Frequency	Percent
Female	10	66.7	10	66.7
Male	5	33.3	5	33.3
Total	15	100.0	15	100.0

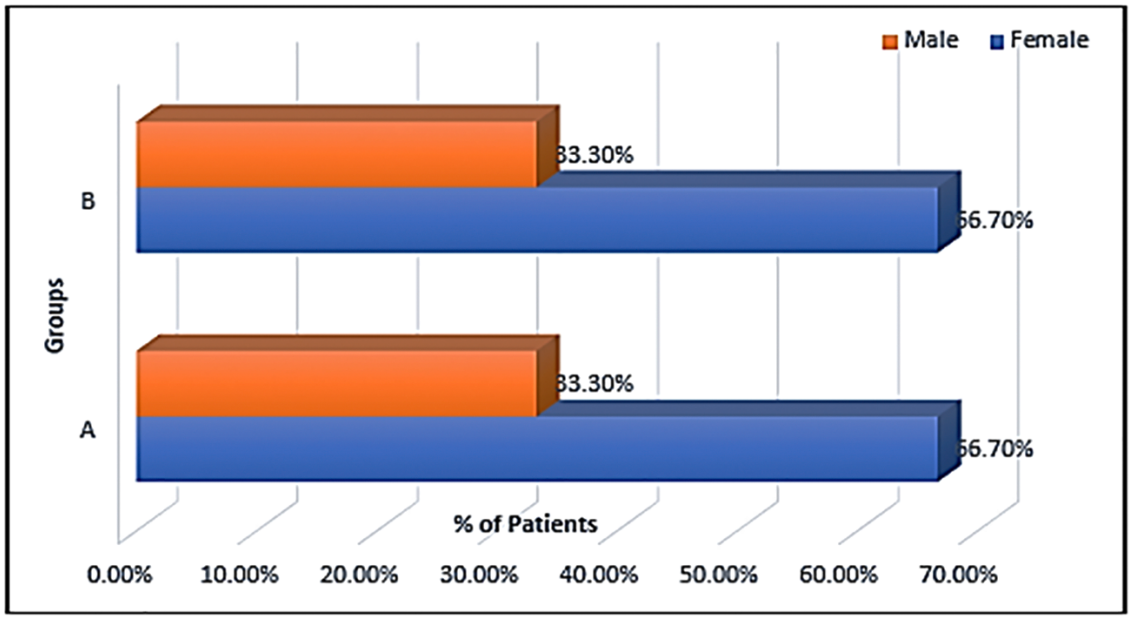

Fig 9: Gender distribution of the patients in Group A and B.

The above Bar Graph shows gender wise distribution of the participants. It is demonstrated that ten female and five male participants were distributed in both groups.

Table 4: To find out whether Gong's mobilization, along with conventional therapy, can decrease shoulder pain and disability and improve the range of motion in subjects with adhesive capsulitis of the shoulder

		Mean	N	Std. Dev	T	df	p
VAS	Before Treatment	7.2667	15	.79881	11.309	14	0.00**
	After Treatment	5.5333	15	.51640			
SPADI	Before Treatment	57.0107	15	3.74159	12.086	14	0.00**
	After Treatment	46.0747	15	4.68301			

Goniometer ER	**Before Treatment**	34.8667	15	3.92550	-5.542	14	0.00**
	After Treatment	44.7333	15	7.21572			
Goniometer AB	**Before Treatment**	124.333	15	5.43358	-11.602	14	0.00**
	After Treatment	140.733	15	7.37241			
Goniometer IR	**Before Treatment**	22.6000	15	2.66726	-4.805	14	0.00**
	After Treatment	32.9333	15	7.82365			

NS: Not Significant; *: Significant at 5%; **: Significant at 1%, p value of Group A, VAS=0.00, SPADI=0, Goniometer (ER, AB, IR=0.00.). N value=15.

The above table is constructed to see the effectiveness of Gong's mobilization and conventional therapy in shoulder pain, disability and improving range of motion in subjects with adhesive capsulitis of the shoulder. In addition, paired t-test was performed to see the significant difference in VAS, SPADI, Goniometer ER, Goniometer AB and Goniometer IR before and after treatment.

Table 5: To find out whether myofascial release technique along with conventional therapy can decrease shoulder pain and disability and improve range of motion in subjects with adhesive capsulitis of the shoulder.

		Mean	N	Std. Dev	t	df	p
VAS	**Before Treatment**	7.2000	15	.86189	16.358	14	0.00**
	After Treatment	5.2667	15	.59362		14	
SPADI	**Before Treatment**	56.6567	15	3.73172	14.472	14	0.00**
	After Treatment	46.4373	15	4.47452		14	
Goniometer ER	**Before Treatment**	34.6667	15	4.45079	-5.387	14	0.00**
	After Treatment	43.8000	15	7.35041			
Goniometer AB	**Before Treatment**	117.400	15	28.90823	-3.140	14	0.007**
	After Treatment	140.600	15	7.10935			
Goniometer IR	**Before Treatment**	22.6667	15	2.82000	-4.835	14	0.00**
	After Treatment	33.0667	15	7.68548			

NS: Not Significant; *: Significant at 5%; **: Significant at 1%, p value of Group B, VAS=0.00, SPADI=0, Goniometer (ER, AB, IR=0.00.). N value=15.

The above table is constructed to see the effectiveness of the myofascial release technique and conventional therapy in shoulder pain, disability and improving range of motion in subjects with adhesive capsulitis of the shoulder. In addition, paired t-test was performed to see the significant difference in VAS, SPADI, Goniometer ER, Goniometer AB and Goniometer IR before and after treatment.

Table 6: To compare the effectiveness of Gong' mobilization with conventional therapy versus myofascial release technique with conventional treatment in patients with adhesive capsulitis by measuring VAS for shoulder pain, GONIOMETER for a range of motion and SPADI for a shoulder disability.

PRE-TREATMENT							
Parameters	**Technique**	**N**	**Mean**	**Std. Dev.**	**t**	**df**	**p**
VAS	**Gong' mobilization**	15	7.2667	.79881	.220	28	.828
	Myofascial release technique	15	7.2000	.86189			NS
SPADI	**Gong' mobilization**	15	57.010	3.74159	.259	28	.797
	Myofascial release technique	15	56.656	3.73172			NS
Goniometer ER	**Gong' mobilization**	15	34.866	3.92550	.131	28	.897
	Myofascial release technique	15	34.666	4.45079			NS
Goniometer AB	**Gong' mobilization**	15	124.33	5.43358	.913	28	.369
	Myofascial release technique	15	117.40	28.90823			NS
Goniometer IR	**Gong' mobilization**	15	22.6000	2.66726	-.067	28	.947
	Myofascial release technique	15	22.666	2.82000			NS

NS: Not Significant; *: Significant at 5%; **: Significant at 1%, p value (Pre-treatment), VAS=.828, SPADI=.797, Goniometer (ER=.897, AB=.369, IR=.947.). The n value for both Group A and Group B is 15.

The table above compares the shoulder pain and disability of the patients before they were treated with Gong's mobilization with conventional therapy and myofascial release technique with conventional treatment. In addition, an independent t-test was performed to compare the comparison of shoulder pain and disability of the patients.

Table 7: POST TREATMENT							
Parameters	**Technique**	**N**	**Mean**	**Std. Dev.**	**t**	**df**	**p**
VAS	**Gong' mobilization**	15	5.5333	.51640	1.313	28	.200
	Myofascial release technique	15	5.2667	.59362			NS
SPADI	**Gong' mobilization**	15	46.074	4.68301	-.217	28	.830
	Myofascial release technique	15	46.437	4.47452			NS
Goniometer ER	**Gong' mobilization**	15	44.733	7.21572	.351	28	.728
	Myofascial release technique	15	43.800	7.35041			NS
Goniometer AB	**Gong' mobilization**	15	140.73	7.37241	.050	28	.960
	Myofascial release technique	15	140.60	7.10935			NS
Goniometer IR	**Gong' mobilization**	15	32.933	7.82365	-.047	28	.963
	Myofascial release technique	15	33.066	7.68548			NS

NS: Not Significant; *: Significant at 5%; **: Significant at 1%, p value (Post-treatment), VAS=.200, SPADI=.830, Goniometer (ER=.728, AB=.960, IR=.963.). The n value for both Group A and Group B is 15.

The table above compares the shoulder pain and disability of the patients after they were treated with Gong's mobilization with conventional therapy and myofascial release technique with conventional treatment. An Independent t-test was performed for the comparison of shoulder pain and disability of the patients. We can infer from the results of table 6 that the two treatments are likely. Therefore, Gong's mobilization with conventional therapy and myofascial energy technique is equally effective in decreasing shoulder pain and disability and improving the range of motion in subjects with adhesive capsulitis of the shoulder.

9. DISCUSSION

This study compares the effectiveness of Gong's mobilization with conventional therapy and myofascial release technique with conventional for decreasing shoulder pain and disability and improving the range of motion in subjects with adhesive capsulitis of the shoulder and compares the effect of both. Outcomes are measured using VAS, Goniometer, and SPADI (Shoulder Pain and Disability Index) scores. Both groups were given interventions five days a week for two weeks and received a conventional physiotherapy treatment regime. In this study, both groups showed a significant reduction in pain due to neurophysiological effects caused by stimulating type 2 mechanoreceptors such as Golgi tendon organs and muscle spindles while inhibiting type 4 nociceptors.[26] Reduction in pain and improvement in range of motion in gongs mobilization group can be correlated to Wontae Gong study on gongs mobilization on shoulder abduction, which states that the shoulder abduction and internal rotation range of motion is restricted in periarthritis of the shoulder due to displacement of the humeral head in anterior and inferior direction during shoulder abduction and internal rotation. When posterior compression to the humeral head is given through gongs mobilization, it puts the humeral head in a normal position; thus, normal rolling and sliding at the articular surface occur, and tension in the posterior capsule is reduced. [27] This normalization of articular surface position and relaxation of the posterior joint capsule help decrease pain and cause an improvement of range of motion leading to an overall increase in functional activity which was proved by a reduction in SPADI scores. Improvement of pain intensity in Group B can be attributed to the treatment effect of MFR, which caused normalization in apoptotic rate, changes in cell morphology and reorientation of fibroblasts. MFR might have led to returning the fascial tissue to its normative length by collagen reorganization. The analgesic effect of MFR can also be attributable to the stimulation of afferent pathways and the excitation of afferent A-delta fibre, which can cause segmental pain modulation and modulation through the activation of descending pain-inhibiting systems. [28] This study supports the findings of Das DM. et al. (2017) reported that subjects with peri arthritis shoulder treated with subscapularis soft tissue mobilization showed a significant reduction of pain and improved glenohumeral external rotation range of motion. [29] This study also supported the finding of Nehal K et al. (2014), who stated that the immediate effect of myofascial release (MFR) with proprioceptive neuromuscular facilitation (PNF) does increase glenohumeral external rotation at more than 90°of shoulder abduction in patients with peri arthritis shoulder. [18] In this study, both the groups received MHP to the shoulder, which might have resulted in vasodilatation, improved blood circulation to the local area and facilitated the removal of waste products from the soft tissues. Tissue heating can reduce the viscosity of collagen, increase tissue extensibility and makes connective tissue less resistant to active or passive stretching. [30] In both groups, noticeable improvement in ROM may be due to the beneficial effect of supervised and stretching exercises. Many studies have claimed that exercise is the most effective treatment for shoulder adhesive capsulitis.[31] It has been depicted that the extensibility of soft tissues can be increased by stretching exercises leading to a change in tissue viscoelastic properties based on creep response. [32] Active exercises like shoulder wheel, Codman's, overhead pulleys and finger ladder exercises help maintain the joint range of motion at the shoulder. [33] The functional capacity may be attributed to reduced pain and improved joint ROM leading to an efficient performance in daily activities. There was a subsequent reduction in the SPADI scores due to reduced pain. Both the groups illustrated reduced SPADI scores, reduced pain and improved ROM. Corroborating the findings of all the outcome parameters, it was observed that both the treatment methods, i.e. Gong's mobilization and myofascial release technique, were effective in reducing pain, improving external rotation, abduction and flexion ROM and function in subjects with adhesive capsulitis and they can be used independently or in combination in a clinical setting to treat adhesive capsulitis.

10. LIMITATIONS OF THE STUDY

The result of the present study needs to be viewed in light of several limitations, such as the duration of the treatment protocol being short, i.e., two weeks, the Sample size being less, and follow-up needing to be done. In addition, long-term effects were not known; particular sides [right & left] and stages of the frozen shoulder were not taken, did not consider all possible shoulder movements were.

11. FUTURE RECOMMENDATIONS

The future scope can include the study can do with a more significant number of subjects, and long-term follow-up can be had; particular stages of adhesive capsulitis can be taken for further studies and other outcome measures such as functional level, depression status, and quality of life can also be measured in the future research.

12. CONCLUSION

The results of this study suggested that both the treatment methods, i.e. Gong's mobilization and myofascial release were effective in reducing pain and improving external rotation, abduction and flexion ROM and function in subjects with adhesive capsulitis.

13. AUTHORS CONTRIBUTION STATEMENT

Tilling Challey, the MPT scholar, carried out the research work in data collection and review of the literature and prepared the thesis as a part of the curriculum of the Master in physiotherapy. Dr Abhijit Dutta (PT) (Corresponding Author), Associate Prof., Associate Dean Faculty of Paramedical Sciences, guided as the main supervisor in the whole study along with topic selection, literature reviews, methodology, results analysis and discussion of the study. Dr Hormot Ryion, a literature revieAssistant Professor at Assam Downtown University, contributed to the study as a co-guide and guided in literature reviews and data collection.

14. CONFLICT OF INTEREST

Conflict of interest declared none.

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