

## Research Paper

## Effects of Myofascial Release on the Pain and Quality of Life in Patients With Fibromyalgia

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**ABSTRACT**

**Objectives:** To investigate the effects of myofascial release technique on pain and quality of life (QoL) in patients with fibromyalgia (FM).

**Methods:** A quasi-experimental study was conducted to investigate the effects of myofascial release technique on patients with FM in Shalamar Hospital Lahore, Pakistan. After initial screening, 28 patients aged 25 to 45 years of both genders meeting the predetermined inclusion criteria were selected using convenience sampling. They were divided into two groups. Group A was treated with myofascial release therapy and passive stretching, while group B was treated with passive stretching alone. The McGill pain questionnaire (MPQ) was used to assess the pain, and the revised FM impact questionnaire (FIQR) was used to evaluate QoL.

**Results:** Out of 28 participants, 11(39.3%) were male and 17(60.7%) were females. Pre- and post-treatment mean scores of pain rating index on MPQ were 46.76±10.47 and 23.79±7.43 for the experimental group and 43.36±12.7 and 30.0±9.89 for the control group, respectively (P>0.05). Mean pre- and post-treatment FIQR scores were 52.9±13.6 and 33.02±13.75 for the experimental group and 57.77±23.04 and 46.59±19.37 for the control group, respectively. The difference in the means of post-treatment scores of the two groups for FIQR was significant (P=0.042).

**Discussion:** Compared with passive stretching alone, the myofascial release method for FM did not demonstrate significant improvement in alleviating pain among such patients. However, it is remarkable that myofascial release therapy unveiled a positive impact by improving the overall QoL for FM patients.

**Keywords:**

Fibromyalgia (FM),  
Myofascial release, Quality of  
life (QoL)

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## Highlights

- Fibromyalgia (FM) is a syndrome characterized by prolonged multifocal pain.
- FM affects the quality of life (QoL).
- The myofascial release technique can be beneficial in improving the QoL in patients with FM.

## Plain Language Summary

FM is characterized by chronic pain in a widespread body area associated with persistent fatigue, generalized morning stiffness, sleep disturbances, increased sensitivity to cold, muscular tenderness, and weakness. The FM management mainly involves relieving pain and improving QoL. The current study determines the effects of myofascial release techniques on pain and QoL in patients clinically diagnosed with FM. Patients in group A were treated with myofascial release technique and passive stretching, while patients in group B were treated with passive stretching alone. Pre- and post-intervention pain assessment and QoL were measured using the McGill and revised FM impact questionnaires. Myofascial release technique for the treatment of FM does not make any improvement in pain when compared with passive stretching alone. However, Myofascial release technique is more beneficial in improving the QoL of patients with FM.

## Introduction

**F**ibromyalgia (FM) is a syndrome characterized by prolonged multifocal pain. It is associated with sleep instabilities, fatigue, and cognitive dysfunction. Common comorbid conditions include anger and anxiety. It is the second most common rheumatologic disorder [1]. Though the precise cause of FM is unknown, aberrations of the nervous system concerning the processing of pain may explain the prolonged pain. Patients with FM express hyper-excitability and hyper-responsiveness of the centralized nervous system (central sensitization). Nociceptive provocations from muscular tissue may contribute to FM syndrome [2]. FM is common, with a prevalence of 2% in the general population [3]. Estimates of prevalence and female preponderance vary widely (0.4% to >11% and >90% to <61%, respectively) [4]. Some patients with FM also experience other symptoms like headache, migraine, abdominal pain, and irritable bowel syndrome [5]. In the general population, the prevalence of FM is ominously lower than in communities with certain ailments [6]. There is a weakened threshold to pain by nociceptive receptors, leading to an augmented reaction to mechanical stimulus, intervened by the magnification of CNS signaling. Widespread pain has been a clinical attribute of FM. It is described by an augmented sensitivity to pressure and light touch [7]. Family history of joint problems and working status are significant risk factors for FM [8]. People diagnosed with FM frequently encounter challenges related to their

mental and cognitive wellbeing. Issues like disrupted sleep, memory issues, feelings of anxiety, and depression are commonly observed and can significantly affect their quality of life (QoL) [9]. Systemic lupus erythematosus-related variables accompany FM, including photosensitivity, oral ulcers, and secondary Sjögren's [10]. FM is associated with a 1.54-fold increased risk for inflammatory bowel disease [11]. The severity of pain and deprived mental health status is associated with clinically diagnosed FM [12].

The pharmacological approach to FM treatment includes selective serotonin reuptake inhibitors, tricyclic anti-depressants, anti-epileptic drugs, serotonin-norepinephrine reuptake inhibitors, and muscle relaxants [13]. Moreover, aerobic exercise, education, improving sleep habits, and cognitive-behavioral therapy can be administered as fundamental treatments for addressing all symptoms. Mind-body exercises are advised as principal approaches for managing pain, fatigue, and sleep issues. Mindfulness is recognized as a primary treatment for depression and a supplementary treatment for other symptoms. Additionally, various interventions, such as music therapy, relaxation techniques, warm baths, and localized heat, are suggested as supplementary treatments, depending on the symptoms [14]. Nonsteroidal anti-inflammatory drugs like ibuprofen and diclofenac have not proved their effectiveness as standalone treatments [15]. Moreover, Physical activity, like exercise or leisure physical training, is essential in managing FM [16].

Millions of individuals throughout the world suffer from FM, with women making up the majority of cases. FM drastically lowers their QoL and strains the patient and the healthcare system. As a result, research into alternate therapy modalities is necessary. Despite common usage and popularity, these therapies have shown vague, incomplete, and conflicting results. The rationale of the current study was to investigate the effects of myofascial release therapy on pain and the QoL in patients diagnosed with FM, which will pave the way for more tailored, effective, and comprehensive treatment strategies in the management of FM.

## Materials and Methods

### Study design and participants

This quasi-experimental study was conducted at the Physiotherapy Department of [Shalamar Hospital](#), Lahore, Pakistan, from January 2019 to July 2019. Twenty-eight male and female patients clinically diagnosed with FM, aged 25 to 45 years, were recruited to participate in this study. Study participants were carefully chosen through a non-probability convenience sampling technique, while the sample size was calculated based on the McGill pain scale of the previous study [17]. The level of confidence was set at 0.95(95%). The statistical power was set at 0.8. Each patient provided written informed consent. Patients meeting the inclusion criteria for this study were those who, during their initial assessment, had been afflicted with moderate to severe pain and reported experiencing activity limitation due to pain for a minimum of one day within the past month. The patients who had a fever, infection, hypotension, respiratory disorder, alteration in cutaneous integrity, and those who had received non-pharmacological therapies were excluded. After initial screening, those meeting predetermined inclusion criteria were divided into two groups.

### Study interventions

All patients benefited from standard care, including patient education and passive stretching. Group A included 14 patients who received myofascial release technique for treatment in addition to passive stretching. Group B included 14 patients who received passive stretching alone. Written informed consent was taken from every participant. The treatment program included 12 sessions over 4 weeks, 3 sessions per week performed by an experienced physiotherapist. Each treatment session took 30 minutes. Passive stretching consisted of holding for 30 seconds during each repetition. The myofascial release technique consisted of local stretching of muscles

that contained tender points, like erector spinae muscles, utilizing the cross-handed technique in the prone lying position. The strength of pressure was accustomed to the individual subjective feelings of the patient during the application of the technique [18]. After the final treatment session, post-intervention pain and QoL measurements were recorded.

The data were analyzed using SPSS, software, version 21. Statistical significance was established at  $P \leq 0.05$ . Using descriptive statistics, frequency tables, and bar charts were provided to show the summary of group measurements. The normality of the data was assessed by the Shapiro-Wilk test. Age, pain rating index, and total FM impact questionnaire scores were normally distributed ( $P > 0.05$ ), but values of present pain index (PPI) were not normally distributed ( $P < 0.05$ ). Parametric tests were applied to find the change between the groups for variables showing normal distribution. The independent t-test was used on the pain rating index (PRI) of the McGill pain questionnaire (MPQ) and the revised FM impact questionnaire (FIQR). The non-parametric test, the Mann-Whitney test, was used to determine the change between the groups for variables not normally distributed, such as the PPI of the McGill pain questionnaire.

### Outcome measures

Pre- and post-intervention pain assessment was done using the McGill pain questionnaire, and QoL was assessed by employing FIQR. MPQ is a tool administered by the interviewer. It can be used to evaluate the effectiveness and efficacy of interventions for pain and to assess pain qualitatively associated with distinct nociceptive conditions and neuropathic pain disorders. The pain is scored between 0 and 78, where 0 indicates no pain, while higher scores correspond to more severe pain intensity [19]. MPQ has been validated in different languages and is a valid and reliable tool for assessing musculoskeletal pain [20].

FIQR is a self-reported questionnaire that assesses various elements of extensive FM. The psychometric evaluation of FIQR has shown its consistency and validity in the Japanese population with FM. The questionnaire comprises 21 items gauging three domains: "Function," which included 9 items; "overall impact" of FM on functioning and severity of symptoms, consisting of two items; and "symptoms," containing 10 items. Every item is scored on a numeric scoring scale with a score ranging from 0 to 10. The results of each domain are summed up, including the function, which ranges from 0 to 90. Overall impact ranges from 0 to 20, and symptoms

**Table 1.** Mean pain rating index scores before and after treatment in both groups

Score	Mean±SD		P
	Group A	Group B	
Pre-PRI	46.76±10.47	43.36±12.7	0.430
Post-PRI	23.79±7.43	30.0±9.89	0.430

PRI: Pain rating index.

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**Table 2.** The Mann-Whitney test for pre- and post-intervention pain measures in both groups

Score	Mean±SD		P
	Group A	Group B	
Pre-PPI	3.21±0.893	3.50±1.092	0.472
Post PPI	1.79±0.802	2.36±0.842	0.060

PPI: Present pain index.

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vary from 0 to 100. After summing the results for every domain, the domains will be normalized by dividing by 3, 1, and 2, respectively. The overall FIQR score is calculated by three domain scores ranging from 0-100. A reduced score shows a better QoL [21].

**Data analysis**

Age, PRI, and total FM impact questionnaire scores were normally distributed ( $P>0.05$ ), while values of PPI were not ( $P<0.05$ ).

**Results**

A total of 28 subjects contributed to the study. They were equally divided into two groups. Selected subjects in one group were treated with myofascial release therapy and passive stretching, while the other group was treated with passive stretching alone.

The Mean±SD ages of groups A and B were 33.576.18 and 37.21±5.91 years, respectively.

The male-to-female ratio in group A was 6:8, while in group B, it was 5:9.

Table 1 shows that the Mean±SD pre-treatment score of the PRI in group A was 46.76±10.47, and in group B was 43.36±12.7. The Mean±SD of the post-treatment score of PRI in group A was 23.79±7.43, and in group B was 30.0±9.89. There was no significant difference in both groups for both pre- and post-PRI scores ( $P>0.05$ ). Both groups showed equal improvement in PRI scores.

The A and B groups' Mean±SD pre-treatment PPI scores were observed as 3.21±0.893 and 3.50±1.092 (Table 2). Also, Mean±SD post-treatment PPI scores in group A were 1.79±0.802, and in group B was 2.36±0.842 ( $P>0.05$ ). In contrast, the difference in the mean scores of the two groups was not statistically significant. Similarly, there was no significant difference in both groups' pre- and post-treatment scores ( $P>0.05$ ). Both groups showed equal improvement in PPI scores (Table 2).

**Table 3.** Difference in means of pre- and post-treatment FIQR score in both groups

Score	Mean±SD		P
	Group A	Group B	
Pre FIQR score	52.9 ± 13.6	57.77 ± 23.04	0.502
Post-FIQR score	33.02±13.75	46.59±19.37	0.042

FIQR: Fibromyalgia impact questionnaire.

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Moreover, the pre-treatment FIQR scores of both groups did not show any significant difference ( $P > 0.05$ ). However, when the mean FIQR scores of post-treatment of the two groups were compared, it revealed a significant difference ( $P < 0.05$ ). More improvement was noted in the FIQR score of group A than in group B (Table 3).

## Discussion

The current study determines the effects of the myofascial release technique on pain and QoL in patients with clinically diagnosed FM.

After pre- and post-intervention analysis, there was an improvement in pain in both groups, but there was no significant difference between the groups in terms of pre- and post-scores. The QoL recorded on the FIQR was improved in both groups. However, the difference in the means of post-treatment scores of the two groups was significant, showing that more improvement was noted in the FIQR score of group A, who received myofascial release technique in addition to passive stretching, than in group B, who just received passive stretching.

Similarities with the current study's findings were reported in an investigation that was intended to discover the advantages of applying self-myofascial release intervention on wellbeing-related to QoL in FM patients, and it concluded that the use of a self-myofascial release program improved the wellbeing life quality of individuals having FM [22].

Our study aligns with a single-blind, randomized controlled trial to compare the impacts of dry needling and myofascial release on FM patients. The study recommended that dry needling is more compelling than myofascial release in addressing pain in FM patients. They highlighted the potential of dry needling as a useful alternative for managing FM symptoms [2].

Similar to the current research findings, a systematic review by Laimi et al. about the efficacy of myofascial release therapy in treating persistent musculoskeletal pain revealed that myofascial release therapy is insufficient for chronic pain [23].

Moreover, varied results were demonstrated by a systematic review conducted by Yuan et al., aimed to evaluate the efficacy of different forms of soft tissue manipulation in treating FM. Compared to a placebo, the myofascial release showed significantly better pain results than the current study. However, similar trends were observed between that systematic review and the

current research regarding improving health-related QoL [24].

The alignment of the current study's findings with the systematic review by Ughreja et al. is noteworthy. According to the meta-analysis outcomes, there was a notable decrease in pain after treatment and a moderate benefit that continued for another six months. In comparison to sham therapies, they concluded that there is moderate evidence in favor of the usefulness of myofascial release provided by a therapist and self-administered by individuals with FM syndrome in improving pain alleviation, sleep quality, and overall QoL [25].

Moreover, another systematic review was conducted to examine the scientific literature to gain an overview of the effectiveness of manual therapy in treating pain, mitigating the effects of the condition, and QoL in FM patients compared to controls or other treatments through randomized clinical trials. Myofascial release was the most frequently used intervention. Based on extremely low to moderate-quality evidence, the available data on manual therapy in patients with FM are insufficient to support and suggest its use in this population. However, osteopathy is the most effective among other manual therapy treatment options [26]. Various studies consider the myofascial release technique as a practical therapeutic choice, while others disagree with this statement.

In conclusion, various treatment alternatives exist for the management of FM. This study favors myofascial release therapy as a valuable complement to conventional physical therapy, offering the potential for improved outcomes when considering the comprehensive wellbeing of FM patients and going beyond just pain management. These nuanced results add to the ongoing discussion over the possible benefits of myofascial release techniques for treating FM.

## Conclusion

The current study suggests that myofascial release therapy for the treatment of FM does not make any improvement in pain compared with passive stretching alone. However, the myofascial release technique is more advantageous in enhancing the QoL of FM patients, as evident from the FIQR findings. So, myofascial release technique can be used as an adjunct therapy for FM patients.



### Study limitations

The sample size in the current study was small, limiting the generalizability of results. The extensive vocabulary of the MPQ might have affected the outcome of the results. Moreover, the duration of the treatment program used in this study could not describe the long-term effects.

### Ethical Considerations

#### Compliance with ethical guidelines

The Ethical Review Committee of Riphah International University RCR & AHS/REC/MS-OMPT/027 approved the study.

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#### Authors' contributions

Investigation: Sahar Aslam and Nida Ilahi; Writing the original draft: Sahar Aslam; Conceptualization, methodology, validation, formal analysis, data curation, review and editing: All authors; Supervision: Syed Shakil ur Rehman.

#### Conflict of interest

The authors declared no conflict of interest.

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