

The Effect Of Myofascial Release Vs Positional Release Technique On Chronic Trapezitis In Breastfeeding Women

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Abstract

Background – Postnatal mothers who breastfeed, might have a variety of musculoskeletal issues. These issues are brought on by the incorrect postures adopted while breastfeeding the infant. The most commonly seen complaint in these women is trapezitis, which is the inflammatory condition of trapezius muscle, causing severe trapezius spasm. The present study compares the effect of myofascial release technique (MFR) and positional release technique (PRT) on chronic trapezitis in breastfeeding women.

Objective The present study was done to compare the effect of myofascial release and positional release technique on chronic trapezitis in breastfeeding women.

Methodology – A sample size 34 Subjects were selected by convenient sampling method and divided into two groups containing 17 in each group. Subjects in group A were treated with MFR while subjects in group B with PRT. Post treatment assessment was taken using VAS, Neck disability index and cervical range of motion. The collected data was analysed.

Results - Comparison of mean in post intervention between Group A and Group B using VAS, where t value is 1.908 and p value 0.2851 which is statistically not significant, whereas within the group it was extremely significant. Further, the Comparison of mean in post intervention between Group A and Group B using NDI questionnaire where t value is 1.004 and p value 0.3261 which is statistically not significant, whereas within the groups it was extremely significant. The comparison between the pre-treatment and post-treatment outcomes suggested that MFR and PRT both are effective in reducing pain intensity on VAS scale and improving cervical ROM and reducing functional disability on NDI score.

Conclusion - The study concluded that there is no significant difference between MFR and PRT on pain, range of motion and functional disability (NDI Score) for trapezius.

Keywords – Trapezitis, Breastfeeding women, Myofascial release (MFR) and Positional release (PRT)

INTRODUCTION

The World Health Organization (WHO) and UNICEF recommend that a child's health journey begins with immediate breastfeeding, urging mothers to start within one hour of birth and to exclusively breastfeed for the first six months. The National Family Health Survey conducted in 2019-21 recorded that, the percentage of children exclusively breastfed up to 6 months of life in India is 63.7% and with special reference to Maharashtra state, it is found to be 70.1%^[1] Usually done every two to three hours, breastfeeding lasts between 15 and 20 minutes. 8 to 12 times a day on average, women breastfeed. As a result, feeding the infant takes up a total of 5 to 6 hours every day.^[2] Thus, mothers who breastfeed might have a variety of musculoskeletal issues. These issues are brought on by the incorrect postures adopted while breastfeeding the infant. These postures can cause long-term postural abnormalities, as they change the spine's natural curvature when held for prolonged periods of time. There are some hormonal changes, which may span from 12 weeks to 6 months after giving birth. These hormonal changes also contribute in developing musculoskeletal issues.^[3] The musculoskeletal pain experienced can be acute to chronic, mostly affecting the neck, shoulder, and back. A study concluded that breastfeeding mothers do experience neck pain while feeding the baby, but as they are so habitual to that pain, they failed to report it appropriately. Their belief is that this pain is normal.

Trapezitis is the inflammatory condition of trapezius muscle, causing severe trapezius spasm. The most common region of neck pain is upper trapezius.^[4] The upper or superior fibers originate from superior nuchal line, external occipital protuberance and ligamentum nuchae and inserted on the spine of scapula and the acromion process. The causative factors of trapezitis are stress and tension, forward head posture, repetitive movements, prolonged head bending activity, sitting without back support, tight pectoral major muscle and severe neck spasm. Moreover, anxious thoughts, feelings, or irregular breathing patterns might stimulate the trapezius.^[5]

Recent studies have concluded that the pathogenesis of trapezitis includes overloading and injury of muscle tissue, leading to involuntary shortening of localized fibers. This stressed musculature has reduced oxygen supply, glucose, and nutrient delivery. Also, these areas accumulate greater amount of metabolic waste. This series of events results in pain altered tissue status and the development of Trigger Points (TP). Tender points have been associated with limited range of motion and hyperalgesia. It is clinically important to identify as this results in restriction of functional activities.^[6] Palpation is frequently used to find trigger points. Travell and Simons describe the clinical features of tender points to include: (1) a cord-like taut muscle band containing a discrete nodule; (2) a history of focal tenderness; (3) a local twitch response, and/or; (4) a spontaneous exclamation of pain by the patient (jump sign) as a result of applied pressure. In addition, there is referred pain or changed sensation at least 2 cm away from the region, which is brought on by pressure applied for 10 seconds, and a restricted range of motion.^[7]

Myofascial release technique (MFR) is a soft tissue mobilization technique. MFR facilitates the neural, mechanical and psychophysiological adaptive potential as it is interfaced via the myofascial system. Rapid moving pressure stimuli prevent the brain from receiving pain impulses, thereby "closing the gate" so that the brain can no longer perceive pain. The release of serotonin also effectively eliminates signals from reaching the brain by blocking their transmission.^[8] MFR treatment manipulates the myofascial complex using precisely directed low load, long duration mechanical pressures with the aim of restoring optimum length, reducing discomfort, and enhancing function. With MFR therapy, the fascia is stretched for an extended period of time while being pulled manually. This dissolves the adhesions in the affected muscle, which reduces discomfort and improves flexibility.^[9] As a result, ROM increases. MFR causes the ground substance's viscosity to shift to a more fluid state, which removes the undue stress of the fascia on affected area, which is painfully sensitive; and restores normal alignment. This method aids in lowering trapezius muscle tightness.^[10]

Positional Release Technique (PRT), also known as Strain Counter Strain (SCS), is a method that involves resetting muscle tone and promoting circulation as a mild manual therapy for muscular discomfort and spasm.^[11] It restores a muscle to its typical resting tone. This procedure involves locating the active TPs and then applying pressure until a nociceptive response is generated. The region is then placed in order to reduce the tension in the affected muscle, which will consequently reduce discomfort in the TP. Long-term holding of the muscle in a contracted state results in adaptive shortening, which eventually induces spasm. This treatment involves lengthening the fibers that approximate the hypertonic muscle's origin and insertion.^[12] This posture inhibits muscle spindle activity, which reduces the number of efferent impulses reaching the brain. The tissue was being protected by efferent impulses from being over structured. The stressed tissues are most relaxed when the position of ease or pain reduction is established, and a local reduction of tone is achieved. By establishing this pathway, the procedure is completed by passively and gently putting the patients back into an autonomously neutral position without activating the muscle spindle, resulting in the desired outcome.^[13]

There are many authors who have conducted the individual studies regarding effect of MFR and PRT in management of trapezitis in general population but there is scarcity of literature focusing on comparison of both the techniques in breastfeeding women, thereby making it an arising need for study. Apart from general population, postnatal women have different causative factors related to poor posture and incorrect breastfeeding positions, which needs to be corrected. The present study was aimed to compare the effect of myofascial release and positional release technique on chronic trapezitis in breastfeeding women. It was hypothesized that there will be a significant difference between the effect of both the techniques.

METHODOLOGY-

This is the study of comparison between the effect of myofascial release and positional release technique on chronic trapezitis in breastfeeding women. This study was conducted in Krishna Vishwa Vidyapeeth Deemed to be University, Karad. An ethical clearance certificate was obtained by Institutional Ethical Committee of Krishna Vishwa Vidyapeeth Deemed to be University, Karad. Subjects who are breastfeeding women and completed 6 months of post-partum period were selected. Subjects were chosen by simple random sampling method according to the inclusion criteria and exclusion criteria. An informed written consent was obtained from the subjects. A pre-treatment Assessment was performed using VAS, Neck disability index and cervical range of motion. 34 Subjects were selected by convenient sampling method and divided into two groups containing 17 in each group. Subjects in

group A were treated with Myofascial Release Technique and trapezius stretching while subjects in group B with Positional release technique along with trapezius stretching. Post treatment assessment was taken using VAS, Neck disability index and cervical range of motion. The collected data was analysed.

Inclusion criteria

- Breastfeeding women who have completed 6 months of post-partum period.
- Subjects with neck pain and unilateral upper trapezius spasm.
- Subjects with restricted range of motion.
- Subjects with VAS score equal to or above 3

Exclusion criteria

- Cervical spine or Shoulder surgery
- Cervical spondylosis
- Malignancy
- Radiating pain in upper extremity

Outcome measures

- Visual Analog scale
- Cervical range of motion
- Neck disability index

Intervention

- GROUP A: Myofascial Release Technique + cryotherapy + stretching to be applied for 3 times per week for 2 weeks.
- GROUP B: Positional Release Technique + cryotherapy + stretching to be applied for 3 times per week for 2 weeks.

Data Analysis and interpretation

Table 1. Demographic data

Age	Frequency	Percentage
Below 20 years	02	05.88 %
20-30 years	24	70.59 %
Above 30 years	08	23.53 %
Underweight	02	05.88 %
Normal BMI	17	50.00 %
Overweight	11	32.35 %
Obese	04	11.76 %
Primigravida	19	55.88 %
Multiparous	15	44.12 %

Table 2. Comparison of mean of VAS score between Group A and Group B

VAS	Mean ±SD		't' value	'p' value	Result
	Pre	Post			
Group A	7.685 ± 1.489	2.765 ± 1.15	26.46	0.001	Extremely Significant
Group B	5.84 ± 1.131	2.48 ± 0.9528	24.56	0.001	Extremely Significant
Group A v/s Group B	4.921± 1.011	4.782 ± 1.011	1.908	< 0.2851	Not Significant

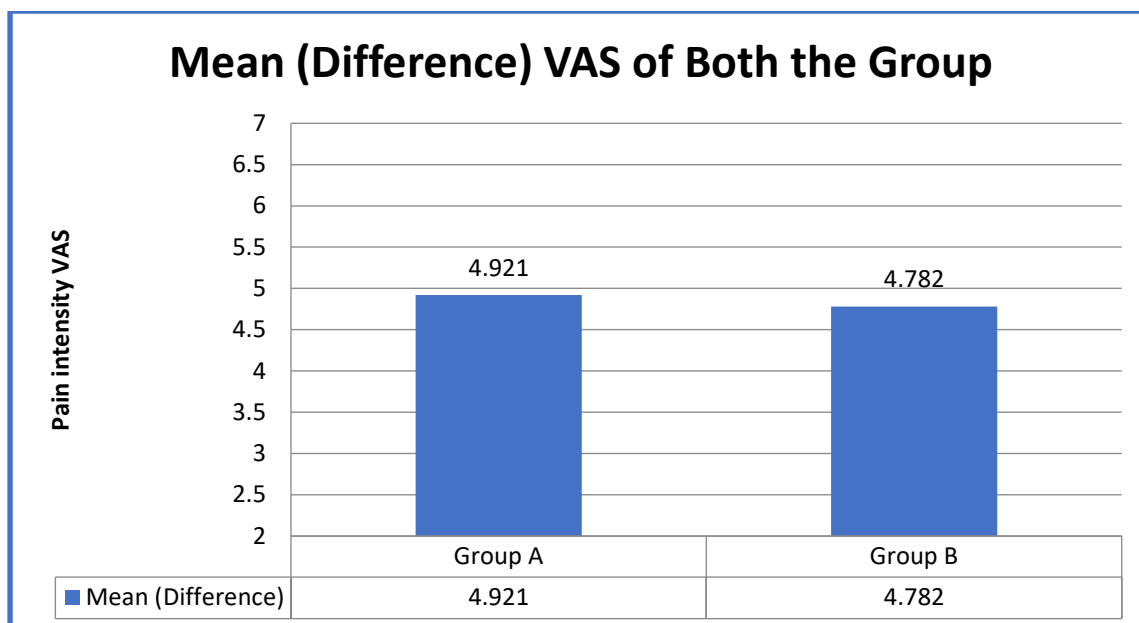


Fig. 1. Mean VAS of both groups

Table 3: Comparison of Post treatment mean difference values between Group A and Group B of cervical ROM between both the groups

CROM	ROM	Mean (Difference)	S.D	SEM	'p' value	't' value	Significance
Lateral flexion Affected side	Group A	36.912	3.833	0.657	0.291	13.60	Not Significant
	Group B	40.647	2.616	0.449	0.001	12.53	Extremely Significant
Lateral flexion Unaffected side	Group A	36.912	1.489	0.255	0.542	16.46	Not Significant
	Group B	32.84	1.154	0.198	0.299	14.256	Not Significant

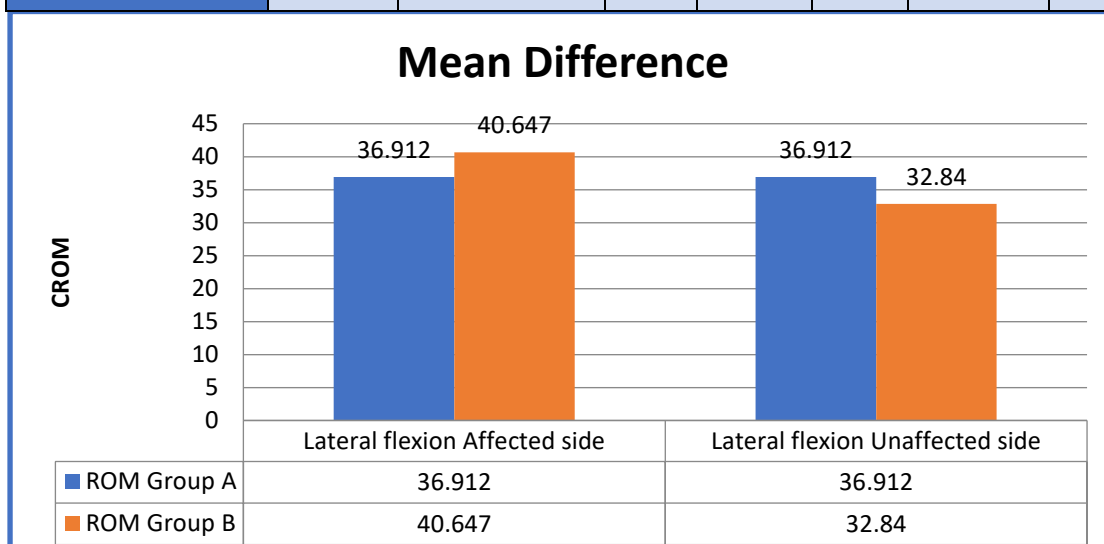


Fig. 2. Comparison of mean cervical range of motion between Group A and Group B

NDI	Mean \pm SD		't' value	'p' value	Result
Group A	Pre	Post			
	30.059 \pm 3.725	31.165 \pm 2.25	30.12	0.0001	Extremely Significant
Group B	6.441 \pm 2.452	5.18 \pm 1.8528	31.16	0.001	Extremely Significant
Group A v/s Group B	23.618 \pm 4.573	24.412 \pm 1.021	1.004	< 0.3261	Not Significant

Table 4. Comparison of mean in post intervention between Group A and Group B using NDI questionnaire where t value is 1.004 and p value 0.3261 which is statistically not significant, whereas within the groups it was extremely significant

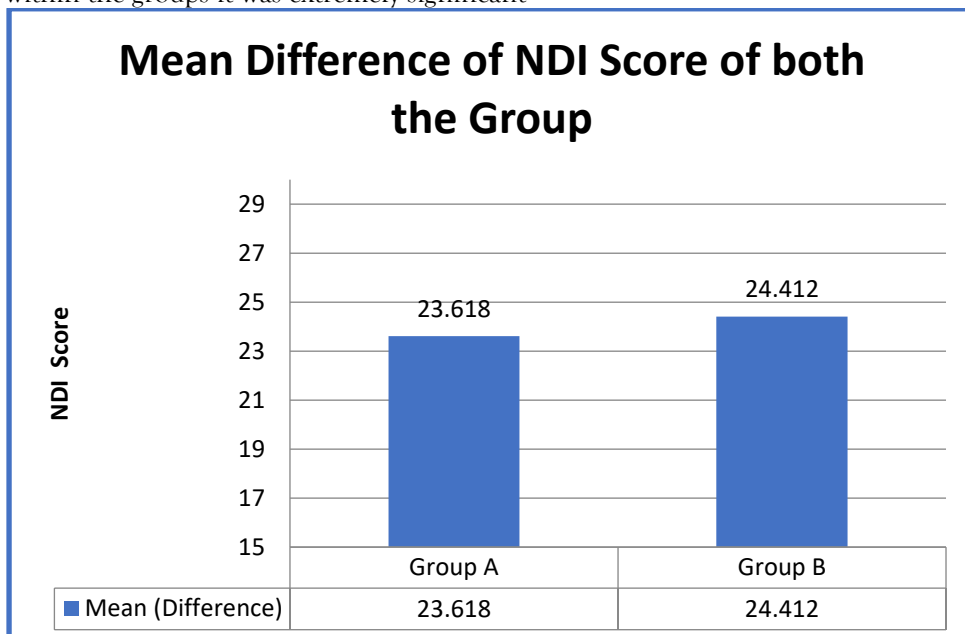


Fig. 3. Comparison of mean difference between Post NDI values between both the groups

RESULT

Comparison of mean in post intervention between Group A and Group B using VAS, where t value is 1.908 and p value 0.2851 which is statistically not significant, whereas within the group it was extremely significant. Further, the Comparison of mean in post intervention between Group A and Group B using NDI questionnaire where t value is 1.004 and p value 0.3261 which is statistically not significant, whereas within the groups it was extremely significant. The comparison between the pre-treatment and post-treatment outcomes suggested that MFR and PRT both are effective in reducing pain intensity on VAS scale and improving cervical ROM and reducing functional disability on NDI score.

DISCUSSION

This study investigated the effectiveness of Myofascial Release (MFR) and Positional Release Technique (PRT) in treating chronic trapezitis in breastfeeding women. The results indicate that while both MFR and PRT were effective in reducing pain, improving cervical range of motion (ROM), and decreasing functional disability within their respective groups, there was no statistically significant difference in the outcomes when the two groups were compared.

The improvements seen in both therapy groups align with each technique's physiological mechanism. The goal of MFR is to restore the mobility of myofascial system by releasing fascial adhesions by

prolonged pressure. Some trials in the general population have confirmed the efficacy of MFR. For example, a systematic review revealed that MFR can significantly reduce pain and improve function in patients with chronic musculoskeletal conditions.^[14] Similarly, research has demonstrated MFR's efficacy in managing neck pain and improving cervical ROM in individuals with upper trapezius tightness^[15]. PRT, also known as Strain Counter-strain (SCS), works by placing the affected muscle in a position of ease to reduce muscle spindle activity, thereby decreasing aberrant neurological signals and leading to muscle relaxation and reduced pain. The effectiveness of this technique in this study aligns with prior research that supports its use for pain reduction and improved function. A study by Kania et al. on chronic mechanical neck pain suggested that PRT significantly reduced pain intensity and disability.^[16] Another study by Gremillion et al. showed that SCS effectively decreased tender point sensitivity and improved cervical ROM in patients with neck discomfort.^[17] The observed improvements in both the MFR and PRT groups validate their application in treating muscle-related pain and dysfunction. Despite the significant improvements within each group, the lack of a significant difference between the results from two interventions is a key finding. This outcome may be explained by the shared underlying physiological mechanisms of the two techniques. While their application methods differ, both aim to modulate the neuromuscular system to reduce muscle hypertonicity and pain. The results of the study are consistent with other comparative studies in literature that have also found no significant difference between various manual therapy techniques. For instance, a randomized controlled trial comparing MFR and Muscle Energy Technique (MET) for chronic neck pain found similar improvements in both the groups, suggesting a common pathway of effectiveness for different manual therapy techniques.^[18] Similarly, research by Lenehan et al. reported no significant difference between the effects of MFR and positional techniques on pain and disability in individuals with musculoskeletal pain.^[19] The limitations of this study, as acknowledged by the authors, include a small sample size and short intervention duration. Future research should consider a larger sample size and a longer follow-up period for better assessment of the long-term efficacy and potential for sustained benefits of each technique. Additionally, while the study focuses on breastfeeding women, future studies could explore the inclusion of postural correction education and ergonomic interventions as part of the treatment protocol. Poor posture during breastfeeding is a significant causative factor for trapezititis in this population, and addressing it directly could enhance treatment outcomes. Some studies have already shown that a combination of manual therapy and ergonomic advice give better results compared to manual therapy alone.^[20]

In conclusion, this study provides valuable evidence that both MFR and PRT are effective short-term interventions for chronic trapezititis in breastfeeding women, offering comparable results in pain reduction, improved ROM, and decreased functional disability. Considering the outcomes, the choice between MFR and PRT for a clinician may depend on other factors, such as patient preference, therapist training, and the specific nature of the myofascial dysfunction. The findings encourage the use of either technique in this population and also highlight the need for further research.

CONCLUSION

The present study suggests that MFR and PRT both are effective in reducing pain intensity on VAS scale and improving cervical ROM and reducing functional disability on NDI score. Hence rejecting the alternative hypothesis and accepting the null hypothesis. Thus, the study concluded that there is no significant difference between MFR and PRT on pain, range of motion and functional disability (NDI Score) for trapezius.

Limitations

- Since the study group size was small, study results cannot be generalized for the entire population.
- Poor geographical area.
- The limitations faced were because of the shorter duration for study.

Suggestions and recommendations

- This study can be performed on a larger population.
- Similar studies can be performed by studying the impact of other techniques such as ultrasound therapy and TENS combined with MFR and PRT.
- More interventions can be added relating to the postural correction of the women.
- This study can be made more precise with more details.

- Above mentioned suggestions and recommendations can be considered for future research.

Consent

All the participants were thoroughly explained about the need and purpose of the study and an informed consent was obtained.

Ethical approval: The study was approved by the Institutional Ethics Committee of the KIMSDU Karad.

Competing interests: Authors have declared that no competing interests exist.

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