# A COMPARISON OF THE QUALITY OF LIFE IN MYOFASCIAL PAIN SYNDROME PATIENTS TREATED WITH THE COURT-TYPE TRADITIONAL THAI MASSAGE AND TOPICAL DICLOFENAC

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**ABSTRACT:**

**Background:** The quality of life of patients with Myofascial pain syndrome (MPS) in the upper and middle trapezius treated with the court-type traditional Thai massage and topical diclofenac was studied.

**Methods:** A randomized controlled clinical trial was performed in 90 MPS patients. The SF-36 health survey was employed to assess the quality of life of both groups of patients. The visual analog scale (VAS) was also used to determine their levels of pain severity.

**Results:** There was no statistically significant difference between the two groups at baseline in terms of age (41.22 *vs* 41.00 years), height 156.58 *vs* 156.98 cm), weight (56.82 *vs* 59.27 kg) and pain periods (8.22 *vs* 6.84 months) ($p<0.222$). The physical component summary (PCS) and the mental component summary (MCS) scores before and after treating the patients with the court-type traditional Thai massage and topical diclofenac indicated significant improvement for both treatment group and the control group .The treatment group, PCS and MCS scores increased significantly from 47.52 to 68.00 and from 40.78 to 66.34 ($p = 0.001$ and 0.001). For the control group, PCS and MCS scores went up from 56.70 to 59.60 and from 40.51 to 50.60 ($p = 0.007$ and 0.002).The VAS means scores before and after the treatments indicated a statistically significant decline for both groups (*p-values* < 0.001).

**Conclusions:** It can be concluded, that both types of treatment have positive therapeutic effects on the quality of life scores of patients with MPS in the upper and middle trapezius. The results also point to the superiority (quality of life SF-36) of CTTM over topical diclofenac.

**Keywords:** Myofascial pain syndrome (MPS), Health-related quality of life (HRQOL), Short-form health survey (SF-36)

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## INTRODUCTION

Myofascial pain syndrome (MPS) is characterized by the development of irritability within small areas of taut bands of skeletal muscle or fascia referred to as trigger points (TrPs). Locally tender and painful when active, TrPs can lead to characteristic referred pain and tenderness, including specific patterns of autonomic reaction to other body areas upon compression [1-6]. A literature review of studies conducted in Thailand and other countries demonstrate that MPS is a major problem adversely affecting the patients' quality of life and their ability to perform daily activities. For instance, the prevalence of MPS is as high as 36% with the patients suffering mainly from skeletal and muscle abnormalities [1, 4, 5].

The treatment of MPS involves relaxing TrPs by, for instance, stretching exercise or massage, or dealing with the factors causing MPS [4-8]. The pharmacological approach is also applied, using medications such as analgesics and nonsteroidal

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anti-inflammatory drugs (NSAIDs); however, these medications have several side effects, including irritation of the stomach or the intestine. Currently, traditional Thai massage is becoming more widely accepted in health care as an alternative to the use of medications, especially in alleviating muscle pain and enhancing physical motion due to its effectiveness in healing muscle fatigue, stress, ache, and pain, including neck pain.

Court - type traditional Thai massage is based on the flow of the life energy known in Thai as Sen which consists of ten major channels called Sen Sib (ten lines). The ailments are caused by the obstruction of these channels resulting in the imbalance of the life energy. The main actions are pressing along the lines and specific points of the body using both thumbs and hands to restore various systems of the body, enhance, prevent and rehabilitate health [9].

The objective of this randomized controlled trial is, therefore, to assess the effectiveness of the court-type traditional Thai massage in reducing MPS in the upper and middle trapezius compared to topical diclofenac. The research findings will cast light on the administration of alternative medicine in treating MPS patients.

## METHODOLOGY

### Trial design

In this single-blind randomized controlled trial, 90 patients were assigned into the treatment group and the control group by simple random sampling method using a pre-generated random assignment scheme enclosed in envelopes.

### Ethical considerations

This research was approved by the Ethical Committee of the Department for Thai Traditional and Alternative Medicine of the Ministry of Public Health (Date of approval April 23, 2014 – April 23, 2015).

### Participants and intervention

A single-blinded, randomized controlled trial was conducted. The participants were patients with MPS in the upper and middle trapezius based on clinicians' diagnosis receiving treatment at Thammasat University. Based on the previous study that the difference level of pain measured by visual analog scale was 1.8 ($\sigma^2$) and the effect size of difference results ($\Delta^2$) was 0.8 to detect a significant difference (p 0.05, two-sided) with 20% attrition rate, 45 participants were required for each study group. The inclusion criteria were diagnosis with MPS; age ranging from 25 to 61 years for both genders; at least three months of regularly recurring symptoms; TrPs of trapezius muscles, spot tenderness, taut bands, tenderness within taut bands, jump signs and switch responses; moderate level of pain prior to treatment (4-6 score); a good command of communication and cooperation; and consent to participation in the research. Excluded from the study were patients during pregnancy and/or with spinal surgery, spinal or pelvic fractures, disc herniation, facet arthropathy, sacroiliitis, cervical spine lesions, such as radiculopathy or myelopathy, and/or systemic diseases, such as arthritis or tuberculosis; a prevailing fever with the temperature of over 37.5 °C; and hypertension with the systolic pressure of equal to or over 140 mmHg and/or the diastolic pressure of equal to or over 90 mmHg.

After the signed informed consent forms were obtained, the participants were randomized into the treatment group and the control group. The former received 30-minute court-type traditional Thai massage (CTTM) once a week for six weeks, whereas the latter was administered 4 g of topical diclofenac gel three times a day for six weeks. The effectiveness of the massage and diclofenac was followed up at day 15 and month 1 after the last treatment. One participant in the control group dropped out after the second treatment because of accidentally arm pain, so there were 45 and 44 participants in the treatment group and the control group respectively.

### Instruments and data collection

Developed by Ware et al. [10] the SF-36 health survey has been widely used to assess health-related quality of life (HRQOL) in countries across the world [11-13]. This multi-purpose questionnaire comprised of 36 items divided into eight HRQOL domains, including physical functioning (PF), physical role functioning (RP), social functioning (SF), bodily pain (BP), general health perceptions (GH), emotional role functioning (RE), vitality (VT), and mental health (MH), the descriptions of which are provided in Table 1. The score for each domain ranges from 0, suggesting maximal symptoms, maximal limitations, and poor health, to 100, demonstrating no symptoms, no limitations, and good health [14]. Thus, an increasingly higher score indicates positive improvement in HRQOL over time.

For both the treatment group and the control group, assessment of the patients' HRQOL was conducted at baseline and one month after the last treatment, using the SF-36 health survey. In addition, their level of pain severity was assessed using the visual analog scale (VAS) throughout at baseline, treatment week 12, day 15, and one month after the last treatment as the VAS evaluation.

**Table 1** Descriptions of the eight domains of the SF-36 health survey

| SF-36 domain | Description |
|---|---|
| Physical functioning (PF) | Ability to perform physical activities |
| Physical role functioning (RP) | Ability to perform work or other daily activities |
| Social functioning (SF) | Ability to perform social activities without extreme or frequent interference due to physical and emotional problems |
| Bodily pain (BP) | Ability to perform one's duties without experiencing pain or limitations due to pain |
| General health perceptions (GH) | Level of one's personal health |
| Emotional role functioning (RE) | Ability to perform work or other daily activities without experiencing problems resulting from emotional limitations |
| Vitality (VT) | Feelings and level of energy |
| Mental health (MH) | Level of peacefulness, happiness, and calmness |

**Table 2** Demographic and participant characteristic use unpaired t-test

| Characteristic | Massage therapy Mean ± SD ( n=45) | Drug Mean ± SD ( n=44) | *p*-value |
|---|---|---|---|
| Age (years) | 41.22±8.42 | 41.00±8.04 | 0.899 |
| Height (cm) | 156.58±6.00 | 156.98±8.05 | 0.791 |
| Weight (kg) | 56.82±8.28 | 59.27±10.63 | 0.228 |
| Pain period (month) | 8.22±6.05 | 6.84±4.39 | 0.222 |

**Table 3** Pain severity measured by VAS before and after treatment

| Visual analogue scale | Mean ± SEM | 95 % CI of Difference | *p*-value |
|---|---|---|---|
| **Drug group n = 44** | | | |
| Baseline | 5.05±0.09 | -0.36**,** 0.18 | 0.516 |
| Treatment week 12 | 2.25±0.27 | 0.72,2.00 | 0.000 |
| 15 day after last treatment | 1.57±0.30 | 0.22,1.54 | 0.010 |
| 30 day After last treatment | 1.59±0.27 | 0.39,1.59 | 0.002 |
| **Massage therapy group n = 45** | | | |
| Baseline | 5.13±0.10 | -0.36,0.18 | 0.515 |
| Treatment week 12 | 0.89±0.18 | 0.72,2.00 | 0.000 |
| 15 day after last treatment | 0.69±0.15 | 0.22,1.54 | 0.009 |
| 30 day After last treatment | 0.60±0.15 | 0.38,1.60 | 0.002 |

SEM= Standard error of mean CI= Confidence interval

### Data analysis

The data were reported on the average score with SEM and 95 % confident interval of SF-36. Hypothesis testing for means comparisons were using generalize linear model and *p*–value obtained between group and within group.

## RESULTS

The two groups were similarly in terms of age, height, weight, and pain period (Table 2). In terms of MPS level of pain severity assessed with the VAS, a comparison of the effect of CTTM and topical diclofenac before and after the treatment indicated a statistically significant decline for both the groups (*p*-values < 0.001). When the two groups were compared, a greater decrease in MPS level of pain severity was identified for the treatment group. The results are illustrated in Table 3.

With respect to the overall PCS and MCS scores, a comparison of the effect of CTTM and topical diclofenac showed a statistically significant improvement for both the groups with the *p*-values ranging from 0.001 to 0.007, as shown in Figure 1. When the two groups were compared, a greater improvement in the overall PCS and MCS scores was found for the treatment group. The results are illustrated in Figure 1.

When each of the SF-36 domains was examined more closely, it was found that the effect of CTTM was statistically significant for all the domains with the p-values ranging between 0.001 and 0.007, while that of topical diclofenac was not statistically significant for physical functioning, vitality, emotional role functioning, and mental health. A comparison of the two groups indicated a greater improvement in the treatment group than in the control group, particularly for social functioning (89.17 *vs*. 78.41), bodily pain (83.11 *vs*. 73.16), general health perceptions (67.96 *vs*. 62.64), and mental health (74.89 *vs*. 64.77). The results are illustrated in Table 4.

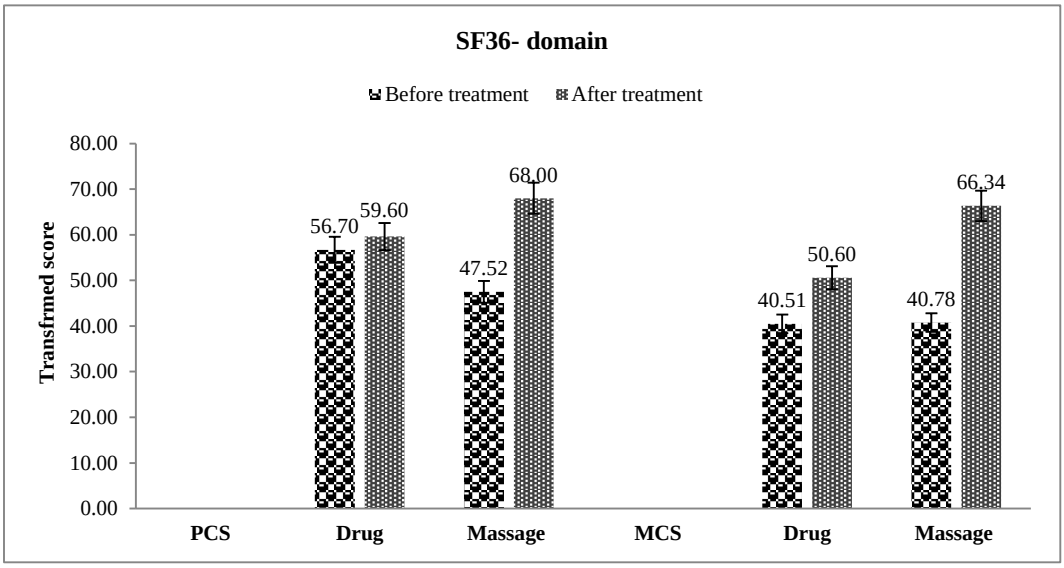



**Figure 1** Comparison of the PCS and the MCS scores before and after treatment as well as between groups

**Table 4** Comparison of mean scores for each SF-36 domain before and after treatment as well as between groups

| SF-36 domains/group | Before treatment | | After treatment | | *p*-value |
|---|---|---|---|---|---|
| | Mean | 95% CI | Mean | 95% CI | |
| **Physical functioning (PF)** | | | | | |
| Treatment | 72.33 | 66.04, 78.63 | 89.44 | 84.66, 94.23 | <0.001 |
| Control | 82.50 | 76.13, 88.87 | 87.16 | 82.32, 92.00 | 0.069 |
| ***p*–value (group)** | | 0.027 | | 0.506 | |
| **Physical role functioning (RP)** | | | | | |
| Treatment | 60.42 | 54.41, 66.43 | 73.06 | 66.28, 79.84 | <0.001 |
| Control | 63.21 | 57.13, 69.29 | 69.89 | 63.03, 76.74 | <0.001 |
| ***p*–value (group)** | | 0.518 | | 0.515 | |
| **Social functioning (SF)** | | | | | |
| Treatment | 68.33 | 62.74, 73.92 | 89.17 | 83.69, 94.64 | <0.001 |
| Control | 62.22 | 56.56, 67.87 | 78.41 | 72.87, 83.94 | <0.001 |
| ***p*–value (group)** | | 0.130 | | 0.007 | |
| **Bodily pain (BP)** | | | | | |
| Treatment | 42.98 | 39.14, 46.81 | 83.11 | 77.11, 89.11 | <0.001 |
| Control | 44.23 | 40.35, 48.10 | 73.16 | 67.09, 79.23 | <0.001 |
| ***p*–value (group)** | | 0.650 | | 0.023 | |
| **General health perceptions (GH)** | | | | | |
| Treatment | 53.38 | 48.42,58.33 | 67.96 | 63.27,72.64 | <0.001 |
| Control | 56.82 | 51.81,61.83 | 62.64 | 57.90,67.37 | <0.014 |
| ***p*–value (group)** | | 0.335 | | 0.116 | |
| **Vitality (VT)** | | | | | |
| Treatment | 56.94 | 52.59, 61.30 | 71.67 | 67.76, 75.58 | <0.001 |
| Control | 57.10 | 52.70, 61.51 | 59.80 | 55.85, 63.76 | 0.209 |
| ***p*–value (group)** | | 0.960 | | <0.001 | |
| **Emotional role functioning (RE)** | | | | | |
| Treatment | 61.11 | 54.09, 68.13 | 74.81 | 67.28, 82.35 | <0.003 |
| Control | 62.88 | 55.78, 69.98 | 70.08 | 62.46, 77.69 | 0.062 |
| ***p*–value (group)** | | 0.726 | | 0.382 | |
| **Mental health (MH)** | | | | | |
| Treatment | 59.78 | 55.30, 64.25 | 74.89 | 70.75, 79.03 | <0.007 |
| Control | 60.57 | 56.04, 65.10 | 64.77 | 60.59, 68.96 | 0.128 |
| ***p*–value (group)** | | 0.806 | | 0.001 | |

## DISCUSSION

The effectiveness of traditional Thai massage in treating patients with MPS and MPS-related diseases

has been examined only in a small number of studies with mixed results. For instance, Jampangern [15] compared the HRQOL of patients with musculoskeletal disorders at Thayang Hospital in Phetchaburi Province, Thailand, before and after treatment with traditional Thai massage, using the SF-36 health survey and the VAS as the main research instruments. After the treatment, the participants reported a statistically significant improvement in all domains of HRQOL and a statistically significant reduction in their level of pain intensity. On the other hand, the findings of Naruemon et al. [16] suggest otherwise. Their research evaluated the physiological effect of traditional Thai massage on reducing muscle pain and related complications, employing the VAS and substance P measurement as the data collection instruments. It was found that after the treatment, the VAS scores reported by the treatment group did not differ significantly from those of the control group. Moreover, substance P measurement indicated that it was, in fact, the subjects in the control group whose substance P dropped statistically significantly, not those in the treatment group.

It likely that such mixed result may results from differences in the patterns of treatment administered to the patients and in the subjects' physical characteristics. This raises a number of issues that should be further investigated in future research, such as the frequency and duration of treatment at which traditional Thai massage will lead to the most desirable results, factors affecting the effectiveness of treatment with traditional Thai massage, the mechanism by which traditional Thai massage may help to reduce pain in patients with MPS and MPS-related diseases, and the long-term effects of traditional Thai massage, to name but a few.

## CONCLUSION

The findings in the present study strongly suggest that CTTM is likely an effective treatment option for MPS in the upper and middle trapezius, particularly in relieving pain severity levels and improving the quality of life. The results also point to the superiority of CTTM over topical diclofenac.

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