EFFECTIVENESS OF COURT-TYPE TRADITIONAL THAI MASSAGE IN PATIENTS WITH CHRONIC TENSION-TYPE HEADACHE: A PILOT STUDY

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ABSTRACT:

Background: Chronic tension-type headache (CTTH) is the most common type of headache. Although the court-type traditional Thai massage has long been applied for treatment of CTTH, little empirical evidence has been reported regarding its effectiveness. The present study aimed to examine the effects of the court-type traditional Thai massage on CTTH patients.

Methods: The sample comprised of ten patients at the Center of Applied Thai Traditional Medicine of Suan Sunandha University who had CTTH and were recruited based on the criteria set forth by the International Headache Society (HIS). The patients received two 45-minute sessions of the court-type traditional Thai massage over a period of one week. One week before and immediately after each treatment, the patients were assessed using the visual analog scale of pain perception (VAS) and active cervical range of motion (CROM).

Results: The majority of the subjects was female and aged 50-65. The pre-treatment assessment showed that on average, they suffered from CTTH 2.7 times per week with each lasting 3.2 hours and the severity of their CTTH stood at 6.8 cm on the VAS. After the massage therapy, the level of severity on the VAS was reduced significantly (VAS before 6.80±0.78 after 4.10±0.99: $p < 0.05$). In addition, the CROM was changed increased in all movement directions ($p < 0.05$).

Conclusions: The findings suggest that From the findings that the court-type traditional Thai massage may be an effective treatment for CTTH. Therefore, further research along similar lines with a control group should be conducted on a larger sample size.

Keywords: Effectiveness, Thai massage, Tension-type headache

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INTRODUCTION

Among patients who seek for medical management, headaches constitute one of the most frequent symptoms. The International Headache Society (IHS) classifies headaches into primary and secondary types. Primary headaches include migraine, tension-type headaches, myofascial pain, and cluster headaches, while secondary headaches involve systemic diseases such as fever, hypertension, increased intracranial pressure, and meningitis [1]. Past research on the prevalence of headaches in countries around the world showed that global mean of all the studies for headache among adults was 48.9%, followed by tension-type headaches at 37% [2]. In contrast, migraines made up 11.2%, and chronic daily headaches contributed to only 3.8%. It was also found that women experienced all types of headaches than men did.

As for tension-type headaches (TTHs), they are most frequently found with approximately 70% of headache patients suffering associated symptoms of TTH. In spite of being prevalent across all age groups and sexes, TTHs occur among 1.5-2 times more women than men. TTHs can be divided into two types: episodic tension-type headaches (ETTHs) and chronic tension-type headaches (CTTHs). Patients experiencing the former will suffer from headache for one to 14 days per month, while those suffering from the latter will experience headache for 15 days or longer for a period of over six months [3]. Worldwide incidence in adults stands at 42% for

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ETTHs and at 1-3% for CTTHs [4].

High prevalent (80-90%) of TTHs also be mentioned by Achananuparp [5]. Studies reported that the factors triggering TTHs relate to both physical and mental issues, such as stress, anxiety, depression, hunger (food consumption at irregular intervals), sleep deprivation, eye fatigue, and exhaustion [6]. TTH treatment involves both pharmacologic and non-pharmacologic approaches. The medicines frequently prescribed for patients with TTHs are acetaminophen, aspirin, nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen and naproxen, as well as tricyclic antidepressants, such as amitriptyline [7]. In contrast to pharmacologic ones, some of non-pharmacologic approaches have been widely used and found effective but with fewer risks and undesirable side effects [3]. These approaches include stress relief techniques, psychotherapy, therapeutic touch, transcutaneous electrical nerve stimulation (TENS), chiropractics, massage, superficial and deep heat therapy, acupuncture, and muscle stretches.

Among complementary therapies, traditional Thai massage is an alternative treatment for musculoskeletal illnesses and relaxation. It can be classified into two types: the popular type traditional Thai or Chaloeisak massage and the court type traditional Thai massage employing polite gestures and emphasizing pressing on specific points on the meridian lines for treatment purposes [8-10].

Limited number of research has been conducted to evaluate the effectiveness of the court-type traditional Thai massage in treating patients with chronic tension-type headaches (CTTH). This pilot study aims, therefore, to examine whether the court-type traditional Thai massage will be effective in the treatment of CTTH patients and establish a foundation for further full-scale research. Ultimately, it is hoped that the findings will gain confidence in and support for this type of therapy.

MATERIALS AND METHODS

Participants

An announcement was made recruiting volunteers with CTTH. The research team explained the project to the volunteers and made appointments to see the Physician for ensuring CTTH diagnosis based on the following inclusion criteria according to the International Headache Society (IHS):

1. History of more than 15 times of headache per month for longer than three months
2. Each headache lasting 30 minutes to seven days
3. More than two of the following characteristics:
   i. Pressing or tightening pain with no pulsation or dizziness
   ii. Mild to moderate intensity
   iii. Bilateral location
   iv. Not worsening with routine activities such as taking the stairs
4. None of the following characteristics:
   i. Nausea and vomiting, except for reduced appetite
   ii. Photophobia together with phonophobia
   iii. Other disorders, such as neurological disorders, fever, weight loss from unknown causes, or some illnesses triggering headaches
   iv. Headaches falling on intensity level of higher than 4

Ten patients who meet these criteria were recruited on the other hand, the subjects excluded from the research were those with the following characteristics prescribed by the IHS:

1. Cervical disorders, such as cervical spondylosis, spondylosis, or herniated disc
2. Neurological disorders, such as hemiplegia or paresis
3. Contagious skin diseases, such as chickenpox or herpes zoster
4. No communicative ability, inability to follow instructions, or high fever (38.5 °C or above)

Procedures

This study employed quasi-experimental design which was conducted at the Center of Applied Thai Traditional Medicine of Suan Sunandha University. The patients received two 45-minute sessions of the court-type traditional Thai massage over a period of one week.

The patients satisfying the selection criteria were informed of the research objective, the preparation and self-care requirements, and the risks and side effects involved. Those agreeing to participate in the research signed a consent form before completing a questionnaire with their personal information and headache symptoms, the stress self-assessment.

Before each treatment, the patients were assessed in terms of the intensity of their headache using the visual analog scale (VAS) as well as their cervical range of motion (CROM) using a tape measure. After that, they were treated with the court-type traditional Thai massage performed by the present author, a licensed applied Thai traditional medical practitioner.

Each therapy involved using the palms and fingers to press along the massage line and was comprised of seven steps lasting 45 minutes as follows:

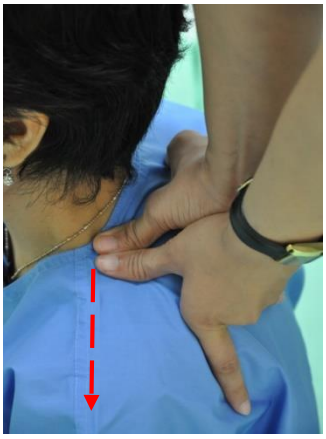

Figure 1 Shoulder massage

Figure 2 Basic Massage of the neck

1. Both sides of the shoulders (15 minutes) (Figure 1)
2. Both sides of the upper back (5 minutes)
3. Both sides of the trapezius and splenius muscle (10 minutes) (Figure 2)
4. Both sides of the clavicle bone muscle (3 minutes)
5. Pressure points 1-5 along the back of the head (5 minutes)
6. The middle of head (2 minutes)
7. Pressure points 1-5 along the front of the head (5 minutes)

After each treatment, the patients were assessed again in terms of the intensity of their headache and their cervical range of motion [8-10].

Measurement instruments

The researchers used Measurement instruments as follows:

The stress self-assessment test developed by the Department of Mental Health, the Ministry of Public Health was administered to assess mental stress of the participants. This short and easy-to-administer test is comprised of 20 questions with 0-3 rating scale responses. The Cronbach's alpha coefficient of the test was 0.84 [11].

The visual analog scale (VAS) has been chosen for the measurement on perception of pain and muscle tension using a 10-centimeter horizontal straight line without interval scale ranging from 0 (no pain) to 10 (most severe pain). The VAS has been employed in many studies [12-16] with high reliability [15, 16].

A measuring tape for assessing the pain free active cervical range of motion (CROM), in directions of flexion, extension, lateral flexion. The CROM devices that were deemed to have "good" reliability and validity [17].

Ethical considerations

This research project was approved by the 1st Ethics Review Committee For Research Involving Human Subjects, Health Science Group, Chulalongkorn University (COA No. 052/2557).

Data analysis

Demographic data were analyzed using descriptive statistics, while the effectiveness of the court-type traditional Thai massage was evaluated using the paired t-test at $p = 0.05$.

RESULTS

Among the ten subjects who satisfied the selection criteria, eight were female patients with no personal illness aged 50-65. On average, they Body Mass Index (BMI) 23 tall with the respiratory rate of 21 times per minute and the average heart rate of 86 times per minute. Their average systolic blood pressure and diastolic blood pressure equaled 112 mmHg and 75 mmHg, respectively. In terms of their headache-related information, the majority of the participants suffered from severe headaches having a considerable impact on their job 3 times per week on average, each of which lasted approximately 3 hours one week. To alleviate their symptoms, two patients would buy a paracetamol (acetaminophen) 500 mg from a pharmacy, while six would not take medicine and two patients treat Traditional Thai massage. On average, the subjects scored 24 on the stress self-assessment. The results are shown in Table 1.

Table 2 shows the intensity of headache and the CROM before and after the administration of the court-type traditional Thai massage. It was found that the intensity of headache on the VAS reduced by 2.7 with the pre-treatment and post-treatment average scores of 6.80 ± 0.78 and 4.10 ± 0.99, respectively. The alleviation of headache intensity

Table 1 Characteristics of patients

Characteristics	N = 10
Gender	
Female (%)	8 (80)
Male (%)	2 (20)
Aged (year)	
35-49 year (%)	2 (20)
50 - 65 year (%)	8 (80)
Body Mass Index (BMI) mean ± SD	23 ± 3.28
Blood pressure (mmHg) mean ± SD	
systolic	112 ± 13.16
diastolic	75 ± 11.78
Respiratory rate (times per minute) mean ± SD	21 ± 0.96
heart rate (times per minute) mean ± SD	86 ± 5.49
Occupation (%)	
self-employed/Business	3 (30)
Government officer/government employer	2 (20)
work as employee	5 (50)
Marital Status; n (%)	
Married	10 (100)
Health status Smoking; n (%)	
No smoker	9 (90)
used to smoker	1 (10)
Alcohol consumtion; n (%)	
No drinking	4 (40)
Occasional drinking	6 (60)
Underlying diseases; n (%)	
None	8 (80)
Yes (Allergy)	2 (20)
Headache pain intensity within 1 week (VAS 0-10 cm) mean ± SD	7 ± 0.42
Headache frequency within 1 week ago (times/week) mean ± SD	3 ± 0.82
Headache duration within 1 week ago (hours); mean ± SD	3 ± 1.15
Severity of headache (%)	
Moderate	2 (20)
Very	8 (80)
Working affected by headache; n (%)	
Can work but less efficient than normal	7 (70)
Try to stay away from work	3 (30)
Previous treatments of headache; n (%)	
Rest	6 (60)
Drug	2 (20)
Traditional Thai massage	2 (20)
Self-stress assessment mean ± SD	24 ± 5.54

Table 2 Intensity of headache and the CROM before and after the administration of the court-type traditional Thai massage

Outcome	court-type traditional Thai massage			
	Pre-test (mean±SD)	**Post-test 2 (mean±SD)**	**Difference (95% CI)**	***P-value***
Pain intensity of headache (VAS; centimeter)	6.80±0.78	4.10±0.99	2.02 to 3.37	0.001
Cervical range of motion (centimeter)				
Flexion	2.95±0.75	2.18±0.98	0.26 to 1.26	0.007
Extension	16.49±1.32	18.03±1.30	-2.44 to -0.62	0.004
Left lateral flexion	6.56±1.65	4.81±1.73	0.95 to 2.54	0.001
Right lateral flexion	5.81±1.22	4.19±1.35	1.04 to 2.19	0.001

was statistically significant at $p < 0.05$. In terms of the CROM, the score of extension increased statistically significantly from 16.49±1.32 to 18.03±1.30 at $p < 0.05$. Also, the scores of flexion, left-lateral flexion, and right-lateral flexion went down statistically significantly from 2.95±0.75 to

2.18±0.98, from 6.56±1.65 to 4.81±1.73, and from 5.81±1.22 to 4.19±1.35, respectively.

DISCUSSION

The objective of this study was to preliminarily examine the effects of the court-type traditional Thai massage on CTTH patients. The results indicated a significantly decrease in the intensity of headaches after the massage sessions. This finding is in agreement with Kruapanich et al. [18]. They tested the effectiveness of traditional Thai massage as compared to rest (sleep) in the treatment of headaches, discovering that the former could reduce the intensity of headaches by 1.84 while the latter did not lead to any recognizable degree of intensity alleviation. However, it should be noted that the degree to which traditional Thai massage in Kruapanich et al. [18] that can bring down headache intensity is lower in comparison with the court-type traditional Thai massage in this research. This is probably because of the differences in the massage sites on the body and position of the patients being massaged between the two types of massage therapy. The present findings also lend credence to Wattakeecharoen [19], Udompittayason [20], and Meechana [21].

Although the mechanism of pain reduction in CTTH that resulted from Court-type Traditional Thai Massage has not been well understood, he results of previous study suggested that the patients with cervical spondylosis who were treated with Court-type Traditional Thai Massage has decreased headache frequency and increase the CROM, reduce pain intensity, increase pain threshold and also has been well linked to improving blood circulation, consistent across the studies of Eungpinichpong [22, 23]. In addition, it is possible that Court-type Traditional Thai Massage may reduce headache as a result of releasing muscle tension of the neck and shoulder girdle that produce referred pain to the head. Since the patients in this were chronic type of TTH, they could have myofascial trigger points that may produce referred pain to the head and neck. The Court-type Traditional Thai Massage that applied for the patients may deactivate those trigger points resulting in pain reduction [24].

As regards the CROM, the court-type traditional Thai massage could enhance flexion, extension, left-lateral flexion, and right-lateral flexion at statistically significant degrees, a finding in line with that of Kruapanich et al. [18], Sooktho [24], and Puusjarvi [25]. The improvement in the CROM is likely to result from the effectiveness of this kind of therapy in alleviating fascia and promote muscle flexibility [22]. The high pressure of court-type traditional Thai massage directly on the target muscles and trigger points stimulate peripheral receptors resulting in the decreasing of alleviating fascia and improving muscle flexibility [26]. Therefore, the CROM outcomes, before and after treatment, were totally different as shown in Table 2.

It can be concluded from the results of the present study that the court-type traditional Thai massage can be effective in treating CTTH patients. Further research should be conducted on a larger sample with a control. Additionally, follow-ups should be carried out in order to monitor the effects of this therapy in the long-run. Finally, it is advisable to conduct research along this line that examines other dependent variables than headache intensity and the CROM.

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