Journal for ReAttach Therapy and Developmental Diversities
eISSN: 2589-7799
2023 January; 6 (1s): 53-58

A Comparison of the Effects of Court-type Traditional Thai Massage and Prasaplai in Reducing Primary Dysmenorrhea

Phanida Wamontree[1]*, Nawatpong Chairat[1], Rosarin Taksin[2], Khongdet Phasinam[3]

[1]School of Integrative Medicine, Mae FahLuang University, Chiang Rai, Thailand
[2]Faculty of Integrative Medicine, Rajamangala University of Technology Thanyaburi, PathumThani, Thailand
[3]Faculty of Food and Agricultural Technology, PibulsongkramRajabhat University, Phitsanulok, Thailand
*Corresponding e-mail:phanida.wam@mfu.ac.th

Received: 24-October-2022
Revised: 30-November-2022
Accepted: 29-December-2022

ABSTRACT

The present study aimed to compare the effects of court-type traditional Thai massage (CTTM) and Prasaplai in reducing primary dysmenorrhea. The experiment was carried out at Mae FahLuang University Hospital, Chiang Rai province, Thailand. The sample comprised 60 volunteers aged 18–25 years. The subjects were randomly assigned to the experimental group (n=30) or the control group (n=30). The former received 40 minutes of CTTM twice per week for eight weeks, while the latter was given two capsules of Prasaplai three times daily for three days starting from the first day of menstruation. Also, the participants' symptoms prior to and after the intervention were evaluated in terms of pain intensity, pressure pain threshold (PPT), and tissue hardness. It was found that their pain intensity, PPT, and tissue hardness dropped significantly after the intervention ($p<0.05$). However, a comparison between the two groups after the intervention revealed no significant differences on any of the measures ($p>0.05$). Therefore, it can be concluded that both CTTM and Prasaplai herbal extract are likely to be efficacious treatment options for the alleviation of primary dysmenorrhea.

Keywords: Court-type traditional Thai massage, CTTM, Traditional Thai massage, Prasaplai, Primary dysmenorrhea.

1. INTRODUCTION

Dysmenorrhea is an important health problem facing women in their reproductive age. Although 70% feel only mild discomfort, up to 10–15% suffer from severe pain impairing their ability to carry out daily activities, such as going to school or working. Among the most common symptoms are throbbing or cramping pains in the lower abdomen, alongside nausea, emesis, fatigue, lumbago, diarrhea, and headache. To relieve such undesirable experiences, symptomatic treatment is normally given, including prescription of analgesics, such as paracetamol, mefenamic acid, and ibuprofen, and of contraceptives.[1]

Dysmenorrhea can be divided into two types: primary and secondary. Primary dysmenorrhea is often experienced by teenage girls during or three years following their first menstrual cycle. While it is most prevalent among young women aged 15–25 years, it usually subsides or disappears postpartum. Primary dysmenorrhea is reportedly caused by hormonal change and the resultant secretion of excessive prostaglandins and uterine contractions.

In contrast, secondary dysmenorrhea is connected to reproductive organ disorders, such as endometriosis, uterine fibroid, procidentia, and salpingitis. This type of period pain is generally first felt among women aged 25 or over who had no prior dysmenorrhea symptoms.[2]

To relieve the symptoms of dysmenorrhea, several options are available. Some may involve pre-, mid-, or post-menstruation intervention, or medicinal or non-medicinal treatment, or both. One of the most common formulas in traditional Thai medicine is Prasaplai, comprising ten herbs and two chemical compounds, namely sodium chloride and camphor. Listed on the National List of Essential Drugs,[3]Prasaplai is widely used for the treatment of period pain as it is proven to be efficacious for the purpose whilst leading to neither acute nor sub-

chronic toxicity.[4] Furthermore, it has been shown to be comparable to mefenamic acid in relieving primary dysmenorrhea among female teenagers.[5]

In comparison, non-medicinal alternatives include acupuncture,[6] hot compress,[7] and massage therapy.[8]

Among these, massage therapy is recognized for not only its efficacy but also its lower undesirable effects, such as irritation to the gastrointestinal tract typically caused by analgesics. A variant of massage therapy, traditional Thai massage focuses on pressure points, employs more forceful pressure, and targets deeper tissue.

A physiological study of the effects of Thai massage on patients suffering from lumbago caused by chronic myositis showed that it could increase skin temperature and enhance core muscle flexibility.[9] Moreover, self-massage was the technique most applied by women during their reproductive age to reduce period pain and avoid reliance on analgesics.[10] Furthermore, massage therapy was proven to be effective in alleviating dysmenorrhea when administered once a week for six consecutive weeks[11] and in lowering menstrual cramps.[12]

Therefore, the objective of this research was to examine the effect of court-type traditional Thai massage (CTTM) in lessening pain intensity, increasing pressure pain threshold (PPT), and lowering tissue hardness among patients with primary dysmenorrhea.

2. METHODOLOGY

Research design and subjects

The present study was a randomized controlled clinical trial conducted at the Traditional Thai Medicine Clinic of Mae FahLuang Hospital, Chiang Rai province, Thailand. The information relating to the experiment was advertised on the notice board from January to April 2022. The inclusion criteria were patients aged 18–25 years diagnosed with primary dysmenorrhea by an obstetrician, while the exclusion criteria were patients having a history of herbal medicine use who presented with a fever higher than 38.5ºC and a chronic medical condition, such as hypertension, diabetes, and gastritis.

Outcome measures

1. The pain intensity experienced by the participants was assessed with a visual analog scale (VAS), a 10-cm line used to indicate levels of pain.

2. The PPT, or when a steadily increasing non-painful pressure stimulus over a given spot on the subjects' lower back turns into a painful sensation, was evaluated using an algometer.

3. The tissue hardness at the hardest spot on the participants' lower back was identified with a tissue hardness meter (OE-220 ITO, Japan).

All the measures were tested prior to and after the intervention.

Experimental procedures

After the present project was approved by Mae FahLuang University Ethics Committee on Human Research (EC21076-25), it was publicized to recruit participants. (Fig.1) Sixty individuals volunteered to take part in and met the inclusion criteria for the study. During the course of the study, the research assistants who measured and recorded the pain intensity, PPT, and tissue hardness would not realize whether the subjects belonged to the experimental or control group. A reliability study was performed for each outcome measure before the study using 10 primary dysmenorrhea patients to determine the intraclass reliability coefficient (ICC) of the VAS, PPT and tissue hardness. The figure equaled 0.90, indicating a very high level of consistency between two ratings.

Prior to the commencement of the trial, the participants were informed of the research objective, asked to complete a survey questionnaire with their demographic data, and educated on appropriate self-care routine. After that, their pain intensity, PPT, and tissue hardness were measured and recorded.

Then they were randomized to the experimental group (n=30) and the control group (n=30). Those in the former received CTTM, whereas those in the latter were prescribed Prasaplai. To prevent potential errors, the CTTM was undertaken by licensed Thai traditional medicine practitioners with over five years of experience.

As for the experimental group, the CTTM comprised seven stages: basic leg massage to open the wind gate and thus stimulate blood circulation (10 minutes), basic back massage (five minutes), back massage

focusing on signal points 1-3 (five minutes), basic outer leg massage (five minutes), outer leg massage focusing on signal points 1-3 (five minutes), basic inner leg massage (five minutes), and inner leg massage focusing on signal points 1-2 (five minutes). The 40-minute therapy was delivered twice weekly for eight weeks.

Regarding the control group, two capsules of Prasaplai herbal extract were to be taken during the first three days of menstruation three times daily after meal for two months.

Upon the completion of the intervention, the subjects' pain intensity, PPT, and tissue hardness were measured and recorded again.

Data analysis

The data relating to the participants' demographic profile and menstruation were analyzed using descriptive statistics. The pain intensity, PPT, and tissue hardness prior to and after the intervention within and between the experimental and control groups were compared using the paired sample t-test and independent t-test at the significance level of 0.05, respectively.

3. RESULTS

The sample comprised 60 subjects, randomized to the experimental group (n=30) or the control group (n=30). The mean age, pain intensity, pain manifestation, pain areas, and accompanying symptoms between the two groups were not significantly different ($p>0.05$), as shown in Table 1.

As illustrated in Table 2, the pain intensity experienced by the subjects in the experimental and control groups prior to and after the intervention reduced significantly with the differences standing at 2.16 (95% CI between 1.66 and 2.66, $p<0.05$) and 2.40 (95% CI between 1.96 and 2.83, $p<0.05$), respectively. Likewise, their PPT rose significantly with the differences reaching -0.44 kg/cm2 (95% CI between -0.60 and -0.27, $p<0.05$) and -0.26 kg/cm2 (95% CI between -0.46 and -0.06, $p<0.05$), respectively. Similarly,

their tissue hardness dropped significantly with the differences equaling 15.21% (95% CI between 10.39 and 20.03, $p<0.05$) and 16.27 (95% CI between 11.09 and 21.45, $p<0.05$), respectively.

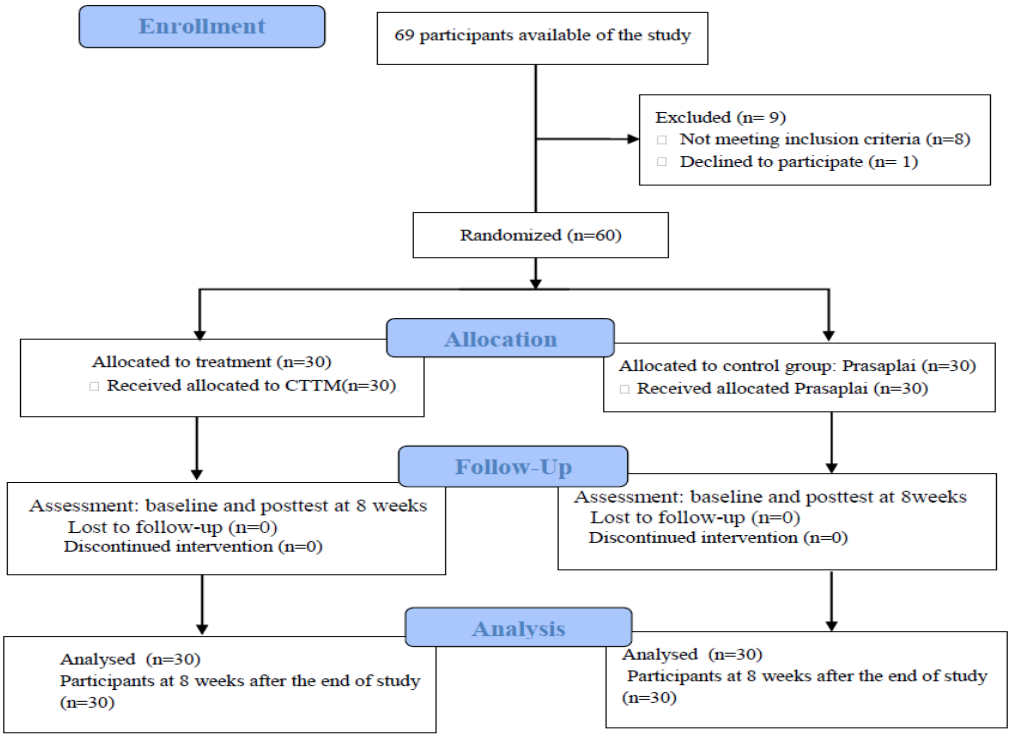

Figure 1: Flow chart of entry and discontinuation by participants during the study.

Table 1: Demographic and baseline clinical characteristics of the participants

Characteristics	CTTM (Mean±SD) n=30	Prasaplai (Mean±SD) n=30	Total
Age (years)	24.13±6.63	22.67±0.65	0.261
Pain score			
Moderate	24 (80.00)	23 (76.7)	0.539
Severe	6 (20.00)	7 (23.3)	
Types of pain			
Colicky, crampy pain	23 (76.7)	25 (83.3)	0.522
Dull pain	7 (23.3)	5 (16.7)	
Affected areas			
Pelvic cavity	10 (33.30)	13 (43.30)	
Thigh	9 (30.00)	5 (16.70)	0.935
Backache	11 (36.70)	12 (40.00)	
Suprapubic			
Symptoms			
Fatigue	6 (20.00)	6 (20.20)	
Mood change	18 (60.00)	16 (53.30)	
Diarrhea	1 (3.30)	4 (13.30)	
Headache	5 (16.70)	4 (13.30)	0.926

$p<0.05$

Table 2: Within-group comparisons prior to and after the intervention

Outcome measures	Groups	Pre-test Mean±SD	Post-test Mean±SD	Difference (95% CI)	p-value
Pain intensity	CTTM	5.60±1.54	3.43±1.56	2.16(1.66–2.66)	0.001*
	Control	5.47±1.10	3.07±1.23	2.40(1.96–2.83)	0.001*
PPT (kg/cm^2)	CTTM	1.62±0.54	2.06±0.58	-0.44(-0.60–0.27)	0.001*
	Control	1.66±0.46	1.92±0.49	-0.26(-0.46–0.06)	0.01*
Tissue hardness (%)	CTTM	60.86±9.58	45.65±9.66	15.21(10.39–20.03)	0.001*
	Control	61.71±10.56	45.44±8.54	16.27(11.09–21.45)	0.001*

*Significant at $p<0.05$

Table 3: Between-group comparisons after the intervention

Outcome measures	Group	Pretest Mean±SD	Posttest Mean±SD	Differencebetween thetwo groups(95% CI)	p-value
Pain intensity	CTTM	5.60±1.54	3.43±1.56	0.36	0.31
	Control	5.47±1.10	3.07±1.23	(0.36–1.09)	
PPT (kg/cm^2)	CTTM	1.62±0.54	2.06±0.58	0.13	0.33
	Control	1.66±0.46	1.92±0.49	(-0.14–0.41)	
Tissue hardness (%)	CTTM	60.86±9.58	45.65±9.66	0.20	0.93
	Control	61.71±10.56	45.44±8.54	(-4.50–4.92)	

$p<0.05$

As displayed in Table 3, the pain intensity, PPT, and tissue hardness experienced by the participants in the experimental and control groups after the intervention were not significantly different with the discrepancies being 0.36 (95% CI between 0.36 and 1.09, $p>0.05$), 0.13 kg/cm2 (95% CI between -0.14 and 0.41, $p>0.05$), and 0.21% (95% CI between -4.50 and 4.92, $p<0.05$), respectively.

4. DISCUSSION

The present findings showed that CTTM and Prasaplai could both help reduce pain intensity although neither was significantly superior to the other. This lends support to past research studies which discovered that massage therapy administered periodically for six weeks would be effective in alleviating dysmenorrhea among 23 patients[11] and that abdominal massage could reduce crampy pain resulting from dysmenorrhea among full-time employees.[12] However, since this study was a randomized controlled trial, it was more robust in teasing out the efficacy of the intervention and minimizing the effects of extraneous variables that could potentially obscure the outcomes. Contrary to expectations, the pain intensity felt by the experimental and control groups prior to and after the intervention was not significantly different (2.16 vs. 2.40) as it was lower than the minimum clinically meaningful discrepancy of 1.[13] A reasonable explanation for this surprising finding awaits further research.

To account for the effects of CTTM in curbing primary dysmenorrhea, it is useful to refer to the gate control theory. As massage involves exerting pressure on muscle tissue and fiber through the skin to inhibit the synthesis, activation, and transport of pain neurotransmitters from nociceptors at the level of the spinal cord,[14] it can help promote blood circulation to, remove pain-inducing chemicals from, and accelerate the healing of inflamed tissue in the area massaged.[9] Specifically in this study, it is likely that CTTM contributes to reducing primary dysmenorrhea by keeping at bay uterine contractions caused by the secretion of excessive prostaglandins resulting from increased production of estrogen and progesterone hormones during a menstrual cycle.

Regarding PPT, CTTM administered on the lower back, buttocks, thighs, and inner and outer legs along the pressure points could revive contracted muscles to normal length and thus lower sensitivity to tenderness, as also similarly reported in[8].

As for tissue hardness, it was found that after the eight-week CTTM therapy, the back, thigh, and lower abdomen muscles became noticeably less stiff, probably due to its efficacy in blood circulation and peripheral nerve stimulation resulting in lower uterine contractions. This finding is consistent with the discovery that deep tissue massage could alleviate chronic non-specific low back pain.[15]

5. CONCLUSIONS

This study was conducted to compare the effects of CTTM and Prasaplai in relieving primary dysmenorrhea. As the findings demonstrate, both the alternatives are clearly effective therapeutic options that can complement or substitute conventional medicinal approaches to pain management commonly associated with such undesirable side effects as irritation to the gastrointestinal tract.

Despite its relatively robust methodology, the present research did not empirically account for the pain relief mechanism of CTTM. In addition, it involved no placebo group due to research ethics and the difficulty in delivering a therapy comparable to CTTM. Finally, the pain intensity and PPT measured during the study might inevitably be limited by errors. Since pain is a subjective and individual experience, it is difficult, if not impossible, to devise completely accurate measurement tools.

Therefore, it is advisable that further research should be carried out to investigate how CTTM helps reduce primary dysmenorrhea, whether it will be efficacious in treating other pain-related symptoms, and what its pain reduction mechanism is. Also, it would be immensely beneficial if more advanced procedures for placebo management and pain measurement could be developed to enhance the validity, reliability, and accuracy of research along similar lines.

6. FUNDING

This study was funded by the Research Development Project of Mae FahLuang University (project code: 641B10021).

REFERENCES

[1] Coco AS. Primary dysmenorrhea. Am Fam Physician 60; 1999: 489–496. PMID: 10465224.

[2] Avasarala AK, Pancangam S. Dysmenorrhea in different settings: Are rural and urban adolescent girls perceiving and managing the dysmenorrhea problem differently?. Indian J Community Med 33; 2008: 246–249. doi: 10.4103/0970-0218.43231.

[3] National List of Essential Drug Committee. National List of Essential Drugs A.D. Ministry of Public Health, 2006.

[4] SomsakNualkaew, ChongkolTiangda, WandeeGritsanapan. Inhibitory action on rat uterine muscle contraction in vitro and acute toxicity in rats of the Thai traditional preparation Prasaplai.Nat Prod Res.Mar; 27 (4-5); 2013; 491-5. DOI:10.1080/14786419.2012.698414

[5] Sriyakool K, Kietinun S, Pattaraarchachai J, Ruangrungsi N. A comparative double blind randomised controlled trial on the efficacy of Prasaplai herbal extract versus mefenamic acid in relieving pain among primary dysmenorrhea patients. The Open Complementary Medicine Journal 4(1); 2012: 16–21. DOI:10.2174/1876391X01204010016

[6] Cherkin DC, Eisenberg D, Sherman KJ, Barlow W, Kaptchuk TJ, Street J, Deyo RA. Randomized trial comparing traditional Chinese medical acupuncture, therapeutic massage, and self-care education for chronic low back pain. Arch Intern Med 2001; 161: 1081–1088. doi: 10.1001/archinte.161.8.1081.

[7] Srbely JZ, Dickey JP, Lowerison M, Edwards MA, Nolet PS, Wong LL. Stimulation of myofascial trigger points with ultrasound induces segmental antinociceptive effects. Pain 2008; 139(2): 260–266. doi: 10.1016/j.pain.2008.04.009.

[8] Fernandez-de-las-Penas C, Alonso-Blanco C, Fernandez-Carnero J, Miangolarra-Page J. The immediate effect of ischemic compression technique and transverse friction massage on tenderness of active and latent myofascial trigger points: a pilot study. J Bodywork MovTher 2006; 10(1) :3–9. DOI:10.1016/J.JBMT.2005.05.00.

[9] Traditional Thai Medicine Rehabilitation Foundation (Ayurvedic College School): Thai Traditional Massage (Court-type Thai Traditional Massage). Bangkok; Thailand; 2005.

[10] Wamontree P, Wiangchai T, Khumlue T, Somboon N, Deepas S, Phasinam K, Watcharinrat D. A study on dysmenorrhea in female undergraduate students at Mae FahLuang University applying the Mahachotarat scripture of Thai traditional medicine. Nat. Volatiles & Essent. Oils 2021; 8(5): 1929–1938. https://www.nveo.org/index.php/journal/article/view/741/671

[11] MahboubehValini, NiloofarGhasemi, ParvinBahadoran, Reza Heshmat. The Effect of massage therapy on dysmenorrhea caused by endometriosis. IJNMR 2010; 15 (4): 167-171.

[12] Kim JS, Jo YJ, Hwang SK. The effects of abdominal meridian massage on menstrual cramps and dysmenorrhea in full-time employ women. TaehanKanhoHakhoe chi. 35(7); 2006: 1325–32. DOI:10.4040/jkan.2005.35.7.1325.

[13] Aguilera FJM, Martin DP, Masanet RA, Botella AC, Soler LB, Morell FB. Immediate effect of ultrasound and ischemic compression techniques for the treatment of trapezius latent myofascial trigger points in healthy subjects: A randomized controlled study. J Manipulative PhysioTher 2009; 32: 515–20. doi: 10.1016/j.jmpt.2009.08.001.

[14] Melzack R, Wall PD. Pain mechanisms: a new theory. Science 1965; 150(3699): 971–9. doi: 10.1126/science.150.3699.971.

[15] Zheng Z, Wang J, Gao Q, Hou J, Ma L, Jiang C, Chen G. Therapeutic evaluation of lumbar point deep massage for chronic non-specific low back pain. J Tradit Chin Med 2012; 32(4): 534-7. doi: 10.1016/s0254-6272(13)60066-7.