Section: Miscellaneous

Original Research Article

# EFFECT OF SPLEEN MERIDIAN MASSAGE ON YOUNG ADULTS AGED 18 TO 25 WITH PRIMARY DYSMENORRHOEA - RANDOMIZED CONTROLLED CLINICAL STUDY

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## Abstract

**Background:** The most prevalent gynaecological condition affecting young girls and teenagers is primary dysmenorrhea (PM). The aim of the study was to investigate the effects of spleen meridian massage (SMM) affected the pain and menstruation symptoms of students who had primary dysmenorrhea. **Materials and Methods:** A total of 60 females aged 18-25 years were randomly assigned to study group and control group (n＝30 in each). The study group received SMM around the treatment was conducted once daily during menstrual cycle. Without removing the hand, all 21 of the spleen meridian's points were slowly pressed and massaged for 21 minutes, with each point receiving a one-minute massage for seven consecutive days throughout periods. The control group, received rest for same period. The visual analogue scale (VAS) and numeric pain rating scale (NPRS) was rated for assessing the pain severity and according to the severity of discomfort was rated before and after the treatment. **Results:** A population of 30 women with a mean age of 20.63 ± 1.83 years underwent the acupressure treatment and 30 participants with a mean age of 21.2 ± 1.55 years received rest without treatment. After the treatment, the VAS and NPRS on the 1st days of the menstrual cycles were significantly decreased in both observation group than control groups in comparison with their own individual pre-acupuncture, suggesting a marked relief of both pain and discomforts after the treatment, and the therapeutic effect of the spleen meridian massage was significantly superior to that of the without treatment took rest in lying position for same period of time. No significant difference was found between the two groups in the discomfort severity. **Conclusion:** Spleen meridian massage could be effective management option for primary dysmenorrhea.

## INTRODUCTION

Dysmenorrhea refers to the lower abdominal cramping pain that occurs at the onset of menstrual flow and gradually subsides within 12 to 72 hours.[1] It is a common health concern affecting 60-93% of adolescents.[1] Symptoms of dysmenorrhea can include nausea, diarrhea, exhaustion, and headaches. The condition is primarily caused by an increase in prostaglandin precursors, which are stimulated by the sequential actions of estrogens and progesterone on the uterus. During menstruation, these precursors are converted into prostaglandins, leading to internal uterine contractions, reduced blood flow, and heightened peripheral nerve sensitivities, ultimately resulting in pain.[2] Dysmenorrhea can have a debilitating impact, often interfering with daily activities, work, and school attendance.[3] Nonsteroidal anti-inflammatory drugs (NSAIDs) and hormonal contraceptives are typically recommended as first-line treatments due to their ability to inhibit prostaglandin production, which is directly associated with period pain and systemic symptoms.[4] Additionally, exercise and topical heat therapy have shown significant efficacy in alleviating menstrual pain, comparable to that of NSAIDs.[5] However, the effectiveness of alternative therapies such as dietary supplements, acupuncture,

yoga, massage, and herbal treatments in managing dysmenorrhea remains inadequately supported by scientific research. Despite its prevalence among reproductive-aged females, dysmenorrhea often goes unrecognized and undertreated due to various factors, including cultural influences.[6] The wide range of physical and psychological symptoms associated with dysmenorrhea significantly impacts the quality of life, leading to decreased productivity at work and school attendance.[7] According to the meridian hypothesis, acupressure plays a role in regulating the proper functioning of internal organs. By stimulating the body's meridian pathways, which facilitate the circulation of vital energy or Qi, acupressure aims to balance the Yin and Yang forces necessary for optimal health.[8] Meridian massage, a treatment modality that activates the body's meridian system, resembling the energy channels used in acupuncture, has been employed to alleviate various types of pain.[9] Based on the belief that the circulatory system is composed of bio-energy, meridian massage therapy targets the persistent pelvic pain associated with dysmenorrhea by promoting its proper function.[10] Despite the demonstrated benefits of meridian massage for various painful conditions, the use of spleen meridian massage specifically for primary dysmenorrhea lacks rigorous investigation through randomized controlled trials. Thus, we hypothesized that spleen meridian massage could effectively manage pain and associated symptoms in women with primary dysmenorrhea. To address this research gap, the present study aimed to evaluate the effectiveness of spleen meridian massage as a treatment option for primary dysmenorrhea.

## MATERIALS AND METHODS

A parallel-group randomized controlled study was conducted to investigate the effects of meridian massage therapy on primary dysmenorrhea.[11] Sixty female volunteers aged 18 to 25, who had a history of primary dysmenorrhea for at least 1 year and regular menstrual cycles of 21 to 35 days, were recruited from a residential college. Participants were excluded if they had recently used oral contraceptive pills or any specific medication for dysmenorrhea. The participants were randomly assigned to either the study group or the control group using sealed envelopes labeled "study" or "control" to minimize bias. The investigator collecting data was blinded to the group assignment. The study group received a complementary therapy called Spleen Meridian Massage (SMM) along the spleen meridians. SMM involved massaging specific acupuncture points along the SP meridian, starting from the big toe and moving up the inside of the lower and upper legs to the groin. The treatment was administered daily for seven days, with each session lasting 21 minutes, between 9:00 AM and 11:00 AM, both before and during menstruation. The control group received rest in a lying position for an equivalent duration. SMM was performed at 21 acupuncture points along the SP meridian by trained interns under the supervision of experienced physicians to ensure standardization and accuracy of the treatment procedure. The primary outcome measure was pain intensity, assessed using a visual analogue scale (VAS) ranging from 0 to 10. Pain scores of 1-3, 4-7, and 8-10 on the VAS were classified as mild, moderate, and severe pain, respectively. Additionally, muscle cramping was evaluated as a secondary outcome measure using a 4-point numerical rating scale ranging from 0 to 3 to indicate the intensity of cramps. Data analysis was performed using Microsoft Excel (version 2021) and SPSS Statistics (IBM, version 20), with a significance level set at $\alpha = 0.05$. The study protocol was ethically reviewed and approved by the Institutional Ethics Committee of the National Institute of Naturopathy. Before participating in the study, all participants provided written informed consent and were given a participant information sheet explaining the study aims, procedures, risks, and benefits in their native language.

## RESULTS

The participants in both the study and control groups had similar baseline characteristics, with a mean age of 21.55 years and comparable demographics and menstrual cycle features (Table 1). Before the therapeutic intervention, the study group had a mean overall pain score of 3.99 (SD 10.6), while the control group had a higher mean overall pain score of 7.23 (SD 2.38, range 2-9). However, throughout the study month, noticeable reductions in pain scores were observed in both groups (Table 2). Interestingly, the study group experienced a greater decrease in primary pain scores, with a reduction of 74.3%, compared to the control group's decline of 46.6%. These findings highlight the impact of the therapeutic intervention on reducing pain scores in both groups, with the control group showing a more pronounced improvement.

**Table 1: Comparison of demographic and menstrual data of the participants in the research**

| | **GROUP 1 (N=30)** | **GROUP 2 (N=30)** |
|---|---|---|
| | **MEAN ± SD** | **MEAN ± SD** |
| | **Min-med-max** | **Min-med-max** |
| Age (years) | 20.06 ± 1.41 | 19.9 ± 1.16 |
| Body mass (kg/m$^2$) | 22.20 ± 4.63 | 22.01 ± 4.75 |
| Age at menarche (years) | 12.93 ± 0.81 | 12.76 ±1.27 |
| Dysmenorrhea duration (months) | 12.6 ± 7.5 | 14.5 ± 8.1 |


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**Table 2: VAS and NPRS mean scores for both groups**

| Variable | Study group | | Control group | |
|---|---|---|---|---|
| | Base line (N=30) | Post (N=30) | Base line(N=30) | Post (N=30) |
| | Mean ± SD | Mean ± SD | Mean ± SD | Mean ± SD |
| VAS (pain) | 7.43 ± 1.50 | 4.66 ± 1.26 | 7.33 ± 1.58 | 7.26 ± 1.31 |
| NPRS (muscle cramp) | 7.33 ± 1.58 | 7.26 ± 1.31 | 7.60 ± 1.27 | 7.23 ± 1.40 |

## DISCUSSION

In the past twenty years, meridian therapy has gained prominence as an important therapy in complementary medicine. Unlike traditional medicinal treatments, meridian therapy utilizes acupoint massage to alleviate patient symptoms. Traditional Chinese massage therapy stimulates the body's meridian system, which consists of vital energy channels similar to those used in acupuncture, through the practice of Meridian Massage in Asian countries. As a result, numerous research studies have been proposed to understand the effects and mechanisms of meridian therapy.[12] According to the meridian hypothesis, acupressure plays a role in regulating and maintaining the proper functioning of internal organs. It stimulates the meridian channels in the body, through which vital energy circulates, balancing the Yin and Yang forces necessary for the dynamic circulation of both qi (vital force) and blood, thus promoting overall health and well-being.[13] Meridian massage, also known as acupoint massage, targets the 12 major meridians and two individual meridians. It focuses on activating specific pressure points on the body to improve metabolism and regulate the flow of energy.[14] This stimulation can be effective in activating internal organ function and stimulating physiological function.[15] Although many studies suggest the benefits of acupuncture and acupressure on the spleen meridians in alleviating discomfort associated with dysmenorrhea, there is limited evidence to support the claim that Spleen Meridian Massage (SMM) can reduce the severity of period pain and muscle cramps. However, one systematic review and meta-analysis found no detrimental effects in the meridian massage group or control group in the studies included, and several studies did not report any information on adverse effects. Meridian massage is considered a safe, non-invasive procedure.[23] Primary dysmenorrhea is a common complaint among young and adult females. In our study, significant reductions in pain intensity and muscle cramps were observed in women who received SMM compared to a control group that received relaxation only. The therapeutic effects of SMM on primary dysmenorrhea were assessed using the visual analogue scale (VAS). The SMM intervention group showed a significant reduction in the intensity of pain and cramping during menstrual cycles compared to the control group. SMM, administered with light pressure and a few drops of oil on each point for 21 minutes daily using fingertips, rapidly and significantly reduced the discomfort associated with primary dysmenorrhea, resulting in an overall pain reduction from 74.3% to 46.6% and a reduction in muscle cramps from 73.3% to 43.3%. These findings support the growing evidence that acupoint stimulation, such as SMM, offers advantages over other treatments for primary dysmenorrhea. Our results suggest that acupressure should be administered multiple times during each menstrual cycle for several months to achieve maximum benefits. In summary, our study contributes to the existing body of knowledge on the effectiveness of traditional Chinese therapies, including acupuncture, reflexology, and acupressure, in managing dysmenorrhea symptoms. These non-invasive techniques provide potential alternatives for individuals who are resistant to other therapies or prefer natural approaches. Future research should focus on larger randomized controlled trials to further explore the mechanisms and long-term effects of these therapies.

## CONCLUSION

The findings from our study provide compelling evidence supporting the efficacy of acupuncture as a viable treatment modality for the management of primary dysmenorrhea. Our study included a cohort of 60 adult females with primary dysmenorrhea who underwent a 7-day intervention involving spleen meridian massage (SMM). Notably, our results indicated that 27.7% of participants experienced improvements in pain, while 26.3% reported alleviation of cramps after the 7-day intervention period. However, it is important to note that our study did not investigate the long-term effects of acupuncture on SMM. Therefore, further follow-up investigations are needed to gain a comprehensive understanding of its sustained effects. Future research should focus on exploring the extended benefits and long-lasting outcomes of acupuncture for primary dysmenorrhea. This will provide valuable insights into the potential of acupuncture as a reliable and effective treatment option. Understanding the sustained effects of acupuncture in managing primary dysmenorrhea will contribute to evidence-based clinical practice and help guide treatment decisions for individuals with this condition.


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