



A PILOT STUDY TO EVALUATE THE EFFECT OF POLYHERBAL ESSENTIAL OIL TRANSDERMAL PATCH IN THE SYMPTOMATIC MANAGEMENT OF *Kashtartava* VIS-A-VIS DYSMENORRHEA

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ABSTRACT

Background: Dysmenorrhea, correlated with Kashtartava in Ayurveda, is one of the most common gynaecological complaints among women of reproductive age and significantly affects their daily activities, academic performance, and quality of life. Conventional treatment mainly relies on non-steroidal anti-inflammatory drugs (NSAIDs) and hormonal therapy, which are effective but often associated with adverse effects and are not suitable for long-term use. Therefore, there is a need for safe, effective, and patient-friendly alternatives. Transdermal drug delivery offers localized and sustained drug release while avoiding first-pass metabolism and minimizing gastrointestinal side effects. Tailaparnyadi Transdermal Pain Patch, formulated with Tailaparna (*Eucalyptus globulus*), Pudina (*Mentha piperita*), Devakusuma (*Syzygium aromaticum*), Karpura (*Cinnamomum camphora*), and Tila Taila (*Sesamum indicum*), is expected to provide analgesic, anti-inflammatory, and counter-irritant effects. **Aim:** To evaluate the effect of Polyherbal essential oil Transdermal Patch in the symptomatic management of Kashtartava vis-à-vis dysmenorrhea. **Methods:** The pilot study was conducted among women aged 20–40 years presenting with painful menstruation. Eligible participants attending the Department of Stree Roga and Prasuti Tantra, JSS Ayurveda Medical College and Hospital, Mysuru, will receive the Polyherbal essential oil Transdermal Patch during episodes of menstrual pain. The patch was applied over the suprapubic region at the onset of menstrual pain and retained for 8 hours. Pain severity, duration of pain, and overall dysmenorrhea severity was assessed using the Visual Analogue Scale (VAS) and Verbal Multidimensional Scoring System (VMSS) before and after intervention. **Result:** All subjects showed a good clinical response to the Polyherbal essential oil transdermal pain patch, with a significant reduction in menstrual pain. Improvement in daily activities and overall quality of life was observed in all participants. The intervention was well tolerated, and no adverse effects were reported. The findings may serve as preliminary evidence for larger controlled clinical studies.

KEY WORDS: Dysmenorrhea, Kashtartava, Polyherbal essential oil transdermal pain patch.

INTRODUCTION

In Ayurveda, Kashtartava, refers to painful menstruation caused predominantly by the vitiation of Apana Vata, leading to pain during the expulsion of Artava. It is not considered a separate disease entity but is recognized as a symptom associated with various Yonivyapads. In modern medicine, this condition can be correlated with dysmenorrhea, the most common gynecological disorders affecting adolescent girls and women of reproductive age. It is defined as painful menstruation of sufficient magnitude so as to incapacitate day to day activity and is broadly classified into primary dysmenorrhea, occurring in the absence of pelvic pathology, and secondary dysmenorrhea, which is associated with underlying pelvic disorders¹. A recent systematic review and meta-analysis reported the global prevalence of dysmenorrhea to be 71.3%, with primary dysmenorrhea accounting for 73% and secondary dysmenorrhea for 35%. The high prevalence and disease burden emphasize the need for effective therapeutic interventions.²

In the management of dysmenorrhea, transdermal therapy enables direct delivery of the therapeutic agent to the site of pain, potentially reducing the need for repeated oral analgesics and their associated systemic side effects. Therefore, a transdermal pain patch represents a patient-friendly, and convenient therapeutic approach for the effective management of dysmenorrhea.

A collective novel drugs which possess the Shoolahara property and used in dysmenorrhoea in oral route were selected for herbal transdermal pain patch incorporating Pudina (*Mentha piperita*), Tailaparna (*Eucalyptus globulus*), Devakusuma (*Syzygium aromaticum*), Karpura (*Cinnamomum camphora*), and Tila Taila (*Sesamum indicum*) provide localized analgesic, anti-inflammatory, counter-irritant, and soothing effects, making it a suitable formulation for the management of dysmenorrhea.

Although individual herbal ingredients have demonstrated analgesic and anti-inflammatory properties in experimental and clinical studies, there is limited published evidence regarding their combined use in an Ayurvedic



polyherbal transdermal pain patch for the management of dysmenorrhea. This highlights an important research gap and warrants further scientific evaluation.

AIM

To Assess The Effectiveness Of Polyherbal Essential Oil Transdermal Pain Patch In Symptomatic Management Of *Kashtartava* Vis-à-Vis Dysmenorrhea

OBJECTIVES OF THE STUDY

To Evaluate The Effect Of Polyherbal Essential Oil Transdermal Pain Patch In Symptomatic Management Of *Kashtartava* Vis-à-Vis Dysmenorrhea

MATERIALS AND METHOD

SELECTION OF THE PATIENTS

The study was conducted among women aged 20–40 years presenting with painful menstruation, irrespective of underlying pathology. Eligible participants attending the Department of Stree Roga and Prasuti Tantra, JSS Ayurveda Medical College and Hospital, Mysuru, were received the Polyherbal essential oil Transdermal Patch during episodes of menstrual pain.

SELECTION OF THE DRUGS

*Pudinaka*³ *Taila*, *Karpura*⁴ *Taila*, *Tila Taila*⁵, *Tailaparna*⁶ *Taila*, and *Devakusuma*⁷ *Taila* were selected due to their analgesic, and anti-inflammatory properties. The transdermal pain patch was prepared as per SOPs and stored in air tight container.

INCLUSION CRITERIA

- Age group 20-40 years.
- Subjects complaining of painful menstruation. Irrespective of day of onset or duration of onset.

EXCLUSION CRITERIA

- Subjects with ongoing analgesic or anti-inflammatory medications that may interfere with pain assessment.
- Subjects who have been using an intrauterine contraceptive device (IUCD) or oral contraceptive pills (OCPs) within the past 6 months.
- Subjects with active skin disorders at the intended application site, including eczema, herpes, dermatitis, psoriasis, fungal infections, or bacterial infections.
- Subjects with a known hypersensitivity or allergy to any component of the herbal pain patch.
- Subjects with active wounds, ulcers, cuts, or lesions at the intended site of patch application.
- Diagnosed case of reproductive malignancy.
- K/C/O Pulmonary allergic diseases
- Subjects under the process of abortion

ASSESSMENT CRITERIA

Symptoms will be evaluated based on Subjective parameter:

- Severity of pain (assessed using visual analog scale)
- Duration of pain (number of hours or days)

- Overall assessment(Verbal Multidimensional Scoring System (VMSS) for Assessment of Dysmenorrhoea Severity)⁸

TREATMENT PROTOCOL

- Subjects with painful menstruation with irrespective of underlying pathology were given with Polyherbal essential oil Transdermal Patch to apply at suprapubic region immediately after the onset of menstrual pain for 6-8 hours or until pain relief is achieved.

OBSERVATIONS

Table No. 1: Number Of Subjects with Age Group:

Age	Number of Subjects
20-30years	4
30-40years	1

Table No. 2: Menstrual Cycle Length

Menstrual Cycle Length	Number of Subjects
25-35days	4
36-45days	1

Table No. 3: Periodicity Of Menstruation:

Periodicity of Menstruation	Number of Subjects
Regular	4
Irregular	1

Table No. 4: Marital Life

Marital Life	Number of Subjects
Unmarried	4
Married	1

Table No. 5: Pain Assessment Before Application of the Herbal Pain Patch

Pain Intensity before Application	Subjects
0-25%	0
26-50%	0
50-75%	3
75-100%	2

Table No. 6: Patch Application Details

Duration of Application	Subjects
1-2 Hours	1
3-4 Hours	1
5-6 Hours	1
7-8 Hours	0
9-10 Hours	0
11-12 Hours	1
13-14 Hours	0
15 Hours	1

Table No. 7: Frequency of Application of patch:

Parameter	Subjects
Once Daily	5
Twice Daily	0



Safety – No skin irritation and adverse effects were reported by the subjects.

RESULTS

A total of five subjects were observed to assess the effectiveness and tolerability of the Polyherbal essential oil transdermal pain patch for dysmenorrhea. Baseline pain intensity before patch application ranged from 60% to 90% indicating moderate to severe menstrual pain.

Following application of the herbal pain patch, all participants reported a significant reduction in pain intensity. The maximum improvement was observed in Subject 2, whose pain reduced from 90% to 15–20%, while Subjects 3 and 4 experienced a reduction from 80% to 40% and 60% to 20%, respectively, while Subject 5 experienced a pain reduction from 70%–30%.

The duration for which the patch was retained varied from 2.5 hours to 15 hours, depending on individual preference and comfort. The onset of pain relief ranged from 30 minutes to 4 hours after application. The earliest pain relief was reported by Subject 1 within 30 minutes, whereas Subject 2 experienced relief after 4 hours.

All participants applied the patch once during the day. No subject reported skin irritation or any other adverse effects, suggesting good local tolerability of the herbal patch

DISCUSSION

The findings of this pilot study suggest that the Polyherbal essential oil Transdermal Patch is effective in providing symptomatic relief in women with dysmenorrhea. All five subjects experienced a reduction in pain intensity following patch application, with pain decreasing from a baseline range of 60–90% to 15–50% after treatment. The onset of pain relief varied between 30 minutes and 4 hours, indicating that the patch provided analgesic effects within a clinically acceptable time. The variability in response may be attributed to differences in individual pain threshold, severity of dysmenorrhea, duration of patch application, and transdermal absorption. Importantly, none of the participants reported skin irritation or any other adverse effects, suggesting that the formulation is safe and well tolerated for topical use.

The observed analgesic effect may be due to the combined action of *Tailaparna Taila*, *Pudinaka Taila*, *Devakusuma Taila*, *Karpura Taila*, and *Tila Taila*, which possess analgesic, anti-inflammatory, and counter-irritant properties.

Tila taila and *Devakusuma Taila* both possess *Vedanasthapana* (analgesic) and *Shoolahara* (pain-relieving) properties, while *Pudinaka* (*Mentha piperita*) and *Karpura*

(*Cinnamomum camphora*) producing a cooling sensation, counter-irritant effect, and thereby reducing pain perception.

Tailaparna exhibits anti-inflammatory and analgesic activities by suppressing inflammatory mediators. Collectively, these herbs help alleviate menstrual pain by reducing inflammation, improving local circulation, and modulating nociceptive pathways.

CONCLUSION

The findings of this pilot study suggest that the Polyherbal essential oil Transdermal Patch is a safe and potentially effective option for the symptomatic management of *Kashtartava* (dysmenorrhea). All participants experienced a reduction in menstrual pain without any reported skin irritation or adverse effects. The patch offers a convenient, non-invasive, and patient-friendly well-tolerated approach for pain relief. However, larger randomized controlled studies are required to establish its efficacy and validate these preliminary findings.

REFERENCES

1. Konar H. DC Dutta's Textbook of Gynecology: Including Contraception. 9th ed. New Delhi: Jaypee Brothers Medical Publishers; 2024.
2. de Arruda GT, Barbosa-Silva J, Driusso P, Pathmanathan C, Armijo-Olivo S, Arias Avila M. Worldwide prevalence of dysmenorrhea: a systematic review and Jianren Mao et al. – The Role of Menthol in Pain and Analgesia: Mechanisms, Practices and Advances. Pharmacological Research. 2022.
3. Jianren Mao et al. – The Role of Menthol in Pain and Analgesia: Mechanisms, Practices and Advances. Pharmacological Research. 2022.
4. Hoang D, Wong A, Olympia RP. Looking back to move forward: The current state of research on the clinical applications of camphor- and menthol-containing agents. Cureus. 2023;15(7):e41426. doi:10.7759/cureus.41426.
5. Bhāvamiśra. Bhāvaprakāśa Nighaṇṭu. Pandey GS, editor. Chuneekar KC, commentator. Varanasi: Chaukhambha Bharati Academy; 2010.
6. R. S. Sharma et al. – Enrichment of Eucalyptus Oil Nano emulsion by Micellar Nanotechnology for Transdermal Analgesic Activity Using Hot Plate Test in Rats. Journal of Drug Delivery Science and Technology. 2021.
7. A. Elmansy et al. – Anti-inflammatory and Anti-nociceptive Effects of Cinnamon and Clove Essential Oil Nanogels: An In Vivo Study. Journal of Drug Delivery Science and Technology. 2023.
8. Pawar K, Sawant S, Deshmukh P. Effects of Yogasanas along with Pranayama on pain and severity in primary dysmenorrhea in adult young females: Interventional study. Int J Health Sci Res. 2023;13(6):195-202.