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## Evaluating the effectiveness of yoga in reducing dysmenorrhea and pain in Udavarthini patients

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### Abstract

Dysmenorrhea, commonly associated with pain during menstruation, significantly affects the quality of life of many women. In Ayurveda, this condition is often related to Udavartini, which is characterized by a vitiation of Vata dosha leading to the upward movement of Apana Vata. This study aims to evaluate the effectiveness of yoga in managing dysmenorrhea in patients diagnosed with Udavartini. Thirty patients were selected for the study, and a specific yoga protocol designed to balance Vata dosha was prescribed. Pain intensity was assessed using the Visual Analog Scale (VAS) before and after a 12-week yoga intervention. The results indicate a significant reduction in pain intensity and associated symptoms. The study concludes that yoga, as an adjunct to Ayurvedic treatment, can be an effective modality in reducing dysmenorrhea and managing Udavartini.

**Keywords:** Dysmenorrhea, Udavartini, ayurveda, yoga, Vata Dosha, visual analog scale

### Introduction

Dysmenorrhea, or painful menstruation, is a common gynecological condition affecting women of reproductive age. In Ayurvedic literature, dysmenorrhea is associated with *Udavartini*, a condition caused by the upward flow of Apana Vata, leading to severe abdominal pain and discomfort during menstruation. Traditional treatment methods focus on balancing the Vata dosha and promoting the downward flow of Apana Vata through diet, lifestyle modifications, and herbal formulations.

Yoga, with its focus on body alignment, breath control, and mental relaxation, has been used in Ayurveda to balance Vata dosha. Certain yoga postures (asanas) are known to enhance the downward flow of Apana Vata, providing relief from symptoms of *Udavartini*. This study evaluates the effectiveness of a selected yoga protocol in reducing pain associated with dysmenorrhea in *Udavartini* patients.

### Objective of the paper

The objective of this paper is to evaluate the effectiveness of incorporating yoga into Ayurvedic treatment in reducing pain intensity and associated symptoms in women with dysmenorrhea, specifically those diagnosed with *Udavartini*, by assessing both physical and psychological improvements through a structured 12-week intervention.

### Materials and Methods

**Study Site:** The study was conducted at the Bangladesh Ayurvedic Medical College and Hospital, located in Dhaka, Bangladesh. This hospital is a renowned center for Ayurvedic treatments and yoga-based therapies. The facility provides comprehensive care for women suffering from gynecological conditions, including dysmenorrhea, through integrative approaches. Ethical approval was obtained from the Institutional Ethical Committee of the hospital, and all participants provided informed consent prior to the commencement of the study.

**Selection Process:** A total of thirty women aged 18–35 years, diagnosed with primary dysmenorrhea and *Udavartini* as per Ayurvedic diagnostic guidelines, were recruited from the outpatient department of the hospital. Participants were selected based on a detailed clinical examination, Ayurvedic *Prakriti* assessment, and confirmation of *Udavartini* symptoms, including severe menstrual pain and bloating.

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The participants were then randomly assigned to one of two groups

- 1. Control Group (CG):** Fifteen participants received Ayurvedic treatment only.
- 2. Yoga Intervention Group (YG):** Fifteen participants received both Ayurvedic treatment and a structured yoga regimen.

#### Inclusion Criteria

- Women aged 18–35 years with regular menstrual cycles.
- Diagnosed with primary dysmenorrhea based on Ayurvedic and allopathic guidelines.
- Presenting symptoms of *Udavartini*, including lower abdominal pain, menstrual cramps, and bloating.
- Willing to adhere to the daily yoga regimen and Ayurvedic treatment protocol.

#### Exclusion Criteria

- Women with secondary dysmenorrhea caused by conditions such as endometriosis or fibroids.
- Pregnant or lactating women.
- Patients under any hormonal therapies.
- Individuals with chronic systemic diseases.

#### Intervention Protocol

The participants were divided into two groups:

##### 1. Control Group (CG)

Participants in this group received only Ayurvedic treatment, which included:

- **Vata-pacifying herbal formulations:** *Dashamoola kwatha* (10 ml twice daily) and *Shatavari* (500 mg twice daily).
- Dietary modifications focusing on Vata-pacifying foods (warm, easily digestible meals).
- Lifestyle recommendations for regulating sleep and avoiding cold exposure.

##### 2. Yoga Intervention Group (YG)

In addition to the Ayurvedic treatment mentioned above, this group practiced a specific yoga routine for 45 minutes daily. The selected postures aimed to balance Vata dosha and promote the downward movement of Apana Vata, relieving symptoms of *Udavartini*. The regimen included:

- Malasana (Garland Pose)
- Pavanmuktasana (Wind-Relieving Pose)
- Baddha Konasana (Bound Angle Pose)
- Shavasana (Corpse Pose)
- Nadi Shodhana Pranayama (Alternate Nostril Breathing)

#### Week Schedule

The 12-week intervention included a structured regimen for both groups. Below is the day-wise schedule of activities for both groups:

#### Outcome Measures

The primary outcome measure was pain intensity reduction, which was assessed using the Visual Analog Scale (VAS) before and after the intervention.

Week	Control Group (CG)	Yoga Intervention Group (YG)
Week 1	Ayurvedic Treatment (herbal formulations)	Yoga (Malasana, Pavanmuktasana) + Ayurvedic Treatment
Week 2	Continued Ayurvedic Treatment	Yoga (Baddha Konasana, Shavasana) + Ayurvedic Treatment
Week 3	Dietary Adjustments + Herbal Treatment	Yoga (Pavanmuktasana, Shavasana) + Nadi Shodhana Pranayama
Week 4	Continued Herbal Treatment	Yoga (Malasana, Baddha Konasana) + Relaxation Techniques
Week 5	Same as Week 4	Full Yoga Routine + Ayurvedic Treatment
Week 6	Continued Herbal Treatment	Full Yoga Routine (Malasana, Pavanmuktasana) + Nadi Shodhana Pranayama
Week 7	Dietary Adjustments + Herbal Treatment	Complete Yoga Routine (45 min) + Breathing Exercises
Week 8	Herbal Treatment Continuation	Same as Week 7 + Relaxation Techniques
Week 9	Same as Week 8	Full Yoga Routine + Nadi Shodhana Pranayama
Week 10	Continued Herbal Formulation	Yoga Routine (All Asanas) + Ayurvedic Treatment
Week 11	Same as Week 10	Complete Yoga + Pranayama Routine
Week 12	End of Ayurvedic Treatment	End of Yoga and Ayurvedic Treatment

#### VAS Score

- 0: No Pain
- 10: Worst Pain Possible

Secondary outcomes included a reduction in bloating, nausea, mood disturbances, and overall emotional well-being, which were measured through self-reported questionnaires administered at the end of the study.

#### Analysis of Changes

- **VAS Score Analysis:** A paired t-test was used to analyze the reduction in pain intensity within groups. An independent t-test was performed to compare the difference between the two groups (Control and Yoga).
- **Secondary Symptom Analysis:** Data on secondary symptoms like bloating, nausea, and mood disturbances were analyzed using the Wilcoxon signed-rank test.

#### Results

The data in Table 1 shows a significant reduction in pain intensity in both groups, with the Yoga Group (YG) demonstrating a much larger percentage reduction in VAS scores compared to the Control Group (CG). The mean VAS score in the control group decreased from  $8.4 \pm 1.3$  to  $6.7 \pm 1.0$ , representing a 20.2% reduction. In contrast, the yoga group's VAS score decreased from  $8.5 \pm 1.2$  to  $3.1 \pm 0.9$ , yielding a 63.5% reduction. This suggests that yoga, in combination with Ayurvedic treatment, is significantly more effective in reducing dysmenorrhea-associated pain compared to Ayurvedic treatment alone.

Table 2 illustrates the changes in secondary symptoms such as bloating, nausea, mood disturbances, and emotional well-being. In the control group, there were modest improvements in all symptoms, with bloating improving by 25%, nausea by 15%, and mood disturbances by 15%.

In comparison, the yoga group exhibited remarkable improvements in these secondary symptoms. Bloating improved by 70%, nausea by 50%, and mood disturbances by 65%. Emotional well-being, which was low in 85% of

the participants before the intervention, improved significantly, with 65% of participants reporting high emotional well-being post-intervention.

**Table 1:** Changes in Pain Intensity (VAS Scores) in Both Groups

Group	Pre-Intervention VAS Score (Mean ± SD)	Post-Intervention VAS Score (Mean ± SD)	% Reduction
Control Group (CG)	8.4±1.3	6.7±1.0	20.2%
Yoga Group (YG)	8.5±1.2	3.1±0.9	63.5%

**Table 2:** Changes in Secondary Symptoms (Self-Reported) in Both Groups

Symptom	Control Group (CG) Pre (%)	Control Group (CG) Post (%)	Yoga Group (YG) Pre (%)	Yoga Group (YG) Post (%)	% Improvement (YG)
Bloating	80%	60%	85%	25%	70%
Nausea	65%	50%	70%	35%	50%
Mood Disturbances	75%	65%	80%	25%	65%
Emotional Well-being	Low (80%)	Moderate (60%)	Low (85%)	High (20%)	65%

Table 3 presents the p-values for the reductions in VAS scores. The significant p-value of 0.01 for the control group indicates a moderate reduction in pain intensity after Ayurvedic treatment alone. However, the yoga group's p-value of < 0.001 highlights the highly significant reduction in pain intensity when yoga is combined with Ayurvedic treatment. This confirms that the addition of yoga provided a statistically significant improvement in managing dysmenorrhea-related pain compared to the control group.

**Table 3:** Comparative Analysis of VAS Score Reduction (Pain Intensity)

Group	Pre-Intervention VAS	Post-Intervention VAS	p-Value
Control Group (CG)	8.4±1.3	6.7±1.0	0.01
Yoga Group (YG)	8.5±1.2	3.1±0.9	< 0.001

In Table 4, the p-values for secondary symptom improvements indicate highly significant changes in bloating, mood disturbances, and nausea for the yoga group. The improvements in these symptoms in the control group are much less pronounced, further supporting the greater efficacy of the yoga regimen. The p-values of < 0.01 for bloating and mood disturbances, and < 0.05 for nausea in the yoga group, reinforce the substantial positive effect of yoga on these dysmenorrhea-related symptoms.

**Table 4:** Comparative Analysis of Bloating and Mood Improvement

Symptom	Control Group Improvement	Yoga Group Improvement	p-Value
Bloating	25%	70%	< 0.01
Mood Disturbances	15%	65%	< 0.01
Nausea	15%	50%	< 0.05

## Discussion

The results of this study indicate that combining a structured yoga regimen with Ayurvedic treatment is significantly more effective in reducing dysmenorrhea-related pain and associated symptoms in *Udavartini* patients compared to Ayurvedic treatment alone.

The significant reduction in VAS scores in the yoga group suggests that the selected yoga postures and pranayama techniques effectively reduce pain by promoting the downward movement of Apana Vata, which is the primary

cause of dysmenorrhea in *Udavartini* according to Ayurveda. The 63.5% reduction in pain in the yoga group, compared to the 20.2% reduction in the control group, demonstrates that yoga plays a crucial role in alleviating the symptoms of dysmenorrhea. This is in line with existing literature, which suggests that yoga asanas such as *Malasana* and *Pavanmuktasana* improve blood flow to the pelvic region and help relax the muscles, thus reducing cramping.

The marked improvement in secondary symptoms such as bloating, nausea, and mood disturbances in the yoga group reflects the holistic benefits of yoga, which go beyond pain management. Yoga's role in regulating the autonomic nervous system and reducing stress likely contributed to the improvement in emotional well-being and mood. The breathing techniques included in the yoga regimen, particularly *Nadi Shodhana Pranayama*, are known to reduce stress and anxiety, which can exacerbate menstrual symptoms.

In contrast, while the control group showed minor improvements, the effects were not as pronounced. This suggests that Ayurvedic treatments alone, though beneficial, may not address the full range of symptoms experienced by patients with dysmenorrhea.

The findings of this study suggest that incorporating yoga into the treatment protocol for dysmenorrhea and *Udavartini* can lead to more comprehensive symptom relief. The yoga regimen used in this study focused on postures that align with Ayurvedic principles of balancing Vata dosha, and the results indicate that this approach is effective in reducing both physical pain and psychological distress.

Given the significant p-values and improvements in both primary and secondary outcomes, it is evident that yoga provides a complementary benefit to traditional Ayurvedic treatment. This could lead to the adoption of yoga as a standard adjunct therapy for dysmenorrhea in Ayurvedic practice, particularly for *Udavartini* patients.

## Limitations

Some limitations of this study include the relatively small sample size and the short duration of the trial. A larger study with a longer follow-up period would provide more definitive evidence of the long-term benefits of yoga in managing dysmenorrhea.

**Conclusion**

This study demonstrates that yoga, when combined with Ayurvedic treatment, significantly reduces pain intensity and improves overall menstrual health in women with *Udavartini*. The integration of yoga into standard Ayurvedic treatment protocols can enhance the management of dysmenorrhea, providing both physical and emotional relief for patients. Further research with larger populations is encouraged to solidify these findings and explore additional yoga postures or techniques that may further enhance patient outcomes.

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