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Assessment of Ayurvedic Practices for Managing Menstrual Pain Among Young Women

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Abstract — Menstrual pain could affect education, work, sleep, and general functioning in young women. Complementary approaches using Ayurveda have been often considered, yet evaluation needs proper definition of the approach, measurement of outcomes, and awareness of concurrent treatment. The present manuscript discusses the proposed framework for a prospective observational assessment of an Ayurveda-based self-care programme in conjunction with usual care in 18- to 25-year-old women with clinically diagnosed primary dysmenorrhea. The simulated analytical sample includes 120 women, with 60 selecting the programme and 60 maintaining their usual care. The outcomes will be evaluated over one baseline menstrual cycle and three subsequent cycles. The mean pain severity is reduced from 7.10 to 4.80 in the programme group and from 7.00 to 5.70 in the comparison group. The difference in the mean change between the groups is -1.00 points (95% confidence interval: -1.56 to -0.44; p=0.001, rounded) on the scale from 0 to 10. The percentage of participants experiencing at least 30% reduction in pain is 56.7% and 33.3%, respectively. The above simulation demonstrates the proper reporting format without establishing the efficacy of treatment. The actual assessment should account for the issues of self-selection, concurrent use of analgesics, adherence, potential side effects, and possible secondary causes of menstrual pain.

Keywords — Ayurveda, primary dysmenorrhea, menstrual pain, young women, complementary care, prospective assessment

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Introduction

Dysmenorrhea is a frequent problem among adolescents and young women. Its significance goes beyond pain severity since the symptoms could impact attendance, concentration, sleep, physical exercise, and social interaction. Thus, an assessment focusing only on presence of pain would underestimate the problem.

The term primary dysmenorrhea relates to menstrual pain without any known underlying pelvic disorder. Secondary dysmenorrhea implies some related condition, such as endometriosis. Differentiation of these types is important when evaluating complementary approaches since pain relief does not exclude underlying conditions.

Proctor and Farquhar [1] outlined the importance of history and symptoms characteristics, along with appropriate investigations, in assessing dysmenorrhea. In more recent time, ACOG released its updated guidelines for endometriosis management in 2026, revising Committee Opinion 760. Therefore, current research protocols should apply to contemporary clinical guidance, and not rely upon previous recommendations. PMC

Ayurveda-based treatments could involve individually-tailored dietary recommendations, daily routines, external applications, herbal products, and professional interventions. These approaches cannot be viewed as single unified intervention. The existence of evidence supporting a certain preparation or technique cannot prove the efficacy of all Ayurveda-based treatments.

The present framework considers a specific, non-pharmacological Ayurveda-based self-care programme in combination with usual care. Its goal is to see if this programme affects menstrual pain and functioning. The framework is not aimed at assessment of the whole Ayurveda system and its medicinal products.

Literature Review

Dysmenorrhea prevalence and risk factors

Ju, Jones, and Mishra [2] reported prevalence and risk factors of dysmenorrhea with considerable variation among studies and populations. Definitions, sample selection, and measurements differ. The study supports the importance of specifying the study population and the pain definition rather than using a prevalence rate from a separate study.

Marjoribanks et al. [3] reviewed nonsteroidal anti-inflammatory drugs for dysmenorrhea. This review provides an important evidence base for studies of complementary care. It is important to note concurrent medication as pain relief can come from various sources including pain medications, self-care, variation, and combinations thereof. Cochrane

Ginger preparations literature

Ozgoli, Goli, and Moattar [4] studied the effects of ginger on primary dysmenorrhea compared to ibuprofen and mefenamic acid. It provides clinical evidence for the effect of a specific botanical preparation on pain. However, no statistical difference found in a small-scale trial does not mean that there is none.

Rahnama et al. [5] performed a placebo-controlled trial on ginger for primary dysmenorrhea. Study results differed depending on the measured outcome and treatment schedule. Therefore, it is necessary to report all information about the preparation, timing and duration of treatment. The results of

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capsules cannot necessarily be generalized to eating or drinking ginger. PubMed



Daily et al. [6] performed meta-analyses of randomized trials of ginger and showed evidence of pain relief. However, the interpretation of aggregated effects is dependent on the quality and comparability of the trials. Such results refer to preparations of ginger and do not concern the program of Ayurvedic care. PubMed

Pattanittum et al. [7] reviewed dietary supplements for dysmenorrhea and concluded about insufficient evidence of high quality, as well as the lack of information regarding safety. This general review emphasizes cautious interpretation of positive findings obtained with botanicals and the necessity to report harms together with benefits. Cochrane

Heat and physical activity

Jo and Lee [8] reviewed heat treatment of primary dysmenorrhea. The results of their analysis allow us to consider heat as a potential complement, although the interventions differed in application method and duration. The use of heat therapy is not restricted to Ayurveda, so its evidence does not prove uniqueness of Ayurveda. Scientific Reports

Armour et al. [9] reviewed physical exercise for dysmenorrhea. While there were results indicative of possible pain-relieving effects, uncertainties in outcomes and evidence quality remained. Physical activity findings do not prove the effectiveness of a lifestyle program including multiple components. Cochrane

Specific Ayurvedic research and safety issues

Jahan, Sujatha, and Neelam [10] studied Uttra Vasti with Trivrit and Lasuna oil for primary dysmenorrhea. This publication represents specific clinical research in Ayurveda, but its procedural intervention is different from the proposed program of self-care. Results of the study cannot prove the possibility of substitution of this procedure with home procedures and cannot guarantee safety of unsupervised administration. PubMed

National Center for Complementary and Integrative Health [11] describes limitations of clinical evidence on Ayurveda and the safety concerns related to some products. Therefore, in case of a study including such products, the precise formula, quality control, interactions, and safety surveillance will be required. NCCIH

Research gap

It is necessary to fill in the research gap related to evaluation of a specific self-care program while maintaining access to usual treatment. The prospective design with menstrual cycle-related diaries allows to improve documentation of exposure and outcomes in comparison with the retrospective reports.

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Thus, the contribution of this paper is the assessment of a specific program, its implementation, and associated symptom changes. It does not imply the exclusiveness of heat, physical activity, and dietary habits to Ayurveda or that evidence of effectiveness of the components proves the effectiveness of the whole program.

Objectives

The primary objective is the comparison of change in menstrual pain intensity from baseline to the third follow-up cycle between women using Ayurveda-informed self-care program and women maintaining usual care.

Secondary objectives are the description of adherence to program, functional interference, analgesics consumption, participant-reported improvement, and adverse events.

Hypotheses

The primary null hypothesis states that the mean change in menstrual pain intensity does not differ between two groups.

The secondary null hypothesis states that the proportion of participants achieving at least 30% reduction in pain does not differ between groups.

Materials and Methods

Study design and setting

The prospective observational comparative design is proposed within a university-affiliated outpatient clinic. Participants would pass one baseline menstrual cycle and then three follow-up menstrual cycles.

The allocation would be based on participants' choice, not the randomization. Women from both groups would have access to usual care. The simulated sample consists of 120 women with complete outcomes, distributed equally between two groups. No recruitment period, response rate or real enrollment of participants is stated.

Inclusion criteria

The eligible participants would be women aged 18-25 years with recurrent menstrual pain and clinical evaluation of primary dysmenorrhea. The pain during the baseline menstrual cycle should be at least four points on the 0-10 scale.

Pelvic pathology, pregnancy, and changes in hormonal therapy would be the exclusion criteria for this particular study. Progressively increasing pain, pelvic pain without menstruation, abnormal uterine bleeding or other concerning signs would be reasons for a clinical evaluation before inclusion.

Clinical evaluation allows to reduce incorrect classification but does not guarantee exclusion of all secondary causes of pain.

Program definition

The Ayurveda-informed program would be provided in the form of a consultation by a qualified practitioner. The program would emphasize external practices, regularity of habits, and personalized discussion of food tolerance and physical activity.

Table A. Proposed programme components and exposure recording

Component	Operational description	Recording method

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External warmth	Comfortable local warmth during painful episodes, with skin protection and avoidance of excessive heat	Episode duration and discomfort diary
Gentle movement	Comfortable stretching or walking adapted to symptoms	Days practised and approximate duration
Daily routines	Discussion of regular meals, sleep opportunities, and activity pacing	Daily checklist
Dietary consultation	Review of usual intake, hydration, and individually reported food-related discomfort	Consultation record and food notes
Practitioner review	Review of symptoms, adherence, concurrent treatment, and unwanted effects	Cycle-end assessment

Oral Ayurvedic medication and internal treatment would not be part of the programme and its findings would thus be limited to the specified mode of self-care.

The comparison group would remain on usual care without instruction on the programme. Self-use of heat, exercise, or other complementary therapy would also be documented since common practices would decrease exposure variance.

Outcome assessment

Women in both groups would rate their maximum menstrual pain at night time on the first three days of their period on a scale ranging from zero, which is no pain, to ten, which is the most severe pain possible.

The cycle outcome would be the average score on these three days. The main endpoint would be pain in the third cycle minus initial pain.



Responders would have a third-cycle mean score that was at least 30% lower than the baseline value. The functional interference would be scored separately using a study-specific 0-10 scale. This scale would not be referred to as a validated questionnaire.

The name, dosage, schedule of use, and rationale for each medication used would be documented. Pain medications would not be withheld.

Monitoring of adherence and safety

Each cycle would entail completion of daily checklists. Adherence would indicate adherence for each component instead of the single assumption that all participants have been exposed in the same manner.

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During each cycle review, participants would be asked about skin irritation, dizziness, exacerbation of pain, GI issues and any other experiences that might arise. Time, severity and any relation to activities would be documented without automatically attributing causation.

Current numerical draft does not contain the number of adverse events since no safety observations were collected.

Sample size calculations

To compare change scores independently, considering a one point difference between groups, change score standard deviation of 1.6, 80% power, two-sided significance level of 5%:

\[n\approx\frac{2(1.96+0.84)^2(1.6)^2}{1.0^2}\approx41 \]

observations per group would be needed under these conditions.

The target of 60 observations per group would be more than sufficient but it would not eliminate confounding or equalize self-selected groups. Statistical analysis

Continuous variables are described in terms of means and standard deviations. The main comparison is done with Welch's independent-samples t-test based on difference scores, with a 95% confidence interval.

Comparison of responder frequencies is performed with Pearson's chi-square test, and their ratio is provided with log-transformed confidence interval. Other outcomes are descriptive.

All computations below rely on simulated aggregated summary statistics. Individual participant-level data are needed to assess distributions, missing data, medication administration, confounding, and adjusted associations.

Ethical considerations

True implementation would necessitate institutional ethics approval and informed consent in writing. Participants would have access to usual therapy and were free to discontinue participation without influencing treatment. Neither ethics approval, completion of consent, clinical trial registration nor recruitment completion is claimed for this draft.

Results

Baseline characteristics

The simulated sample includes 60 women in each arm. Pain levels and other baseline characteristics shown above are numerically comparable but do not prove comparability in an observational study.

Table B. Simulated baseline characteristics

Characteristic	Programme group, n=60	Usual-care group, n=60
Age, years	21.2 ± 1.9	21.4 ± 2.0
Menstrual cycle length, days	28.8 ± 2.6	29.1 ± 2.8
Bleeding duration, days	4.8 ± 1.1	4.9 ± 1.0
Baseline pain, 0–10	7.10 ± 1.20	7.00 ± 1.30
Baseline functional interference, 0–10	6.20 ± 1.60	6.00 ± 1.70

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Values are simulated mean ± standard deviation.

Pain outcomes

Mean pain decreased across follow-up cycles in both groups.

Table C. Simulated menstrual pain outcomes

Assessment	Programme group	Usual-care group
Baseline cycle	7.10 ± 1.20	7.00 ± 1.30
Follow-up cycle one	6.30 ± 1.40	6.50 ± 1.40
Follow-up cycle two	5.50 ± 1.50	6.00 ± 1.50
Follow-up cycle three	4.80 ± 1.60	5.70 ± 1.70
Change: cycle three minus baseline	−2.30 ± 1.50	−1.30 ± 1.60

Standard deviations of change scores are separately stated; they are not calculated by subtracting standard deviations at end points.

Mean difference in change was -1.00 (95% CI = -1.56 to -0.44). The value of t using Welch's test was -3.53, approximate degrees of freedom 117.5 and p = 0.00059 (<0.001).

The mean reduction was 32.4% of the baseline mean of the group in the programme group and 18.6% of usual care group. These are ratios of group means and not average percentages.

Responder analysis

Table D. Simulated attainment of at least 30% pain reduction

Outcome	Programme group	Usual-care group
Responders	34	20
Nonresponders	26	40
Total	60	60
Response proportion	56.7%	33.3%

The proportion ratio was 1.70 (95% CI: 1.12–2.59), with \(p=0.010\). The difference was 23.3 percentage points.

Since group assignment is self-selective, these statistics reflect the relationship rather than a causal treatment benefit.

Functional interference

At the third cycle, simulated mean interference scores were 4.00 ± 1.80 in the programme group and 4.90 ± 1.90 in usual care. The simulated mean changes were −2.20 and −1.10 points.

An inferential comparison is not provided because the variance of change scores is not specified for this outcome measure. Results of medication, adherence, and adverse events remain unspecified until the observation stage.

Discussion

Simulation shows how pain outcomes can be consistently analyzed throughout a baseline cycle and three follow-up cycles. Both groups show improvement, with a higher mean improvement in the programme group. This can be explained in various ways and does not prove the efficacy of the intervention.

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The self-selection factor is especially relevant. Patients who choose alternative medicine can vary in expectations, motivations, financial capacity, experience of treatment or readiness to keep diaries. Even equal baseline pain scores do not exclude these differences.

The programme includes several elements. There is evidence on heat [8] and exercise [9], which makes it logical to analyze these elements of the programme. However, even though some components have proven efficacy, it cannot explain what component accounts for a change.

A discussion of the botanical literature should be separate. Several studies on ginger [4,5] and the review by Daily et al. [6] refer to specific preparations. Since no oral medicine is used in this study, it is impossible to verify these results.



Improvement in the comparison group highlights natural variability, normal treatment, and regression to the mean. Enrolling women when pain levels happen to be especially high can result in decreased scores irrespective of the introduction of a new programme.

Analgesic drug use is another key interpretative consideration. Increased use can independently reduce pain levels, whereas decreased use with equivalent pain could mean something else. It is necessary to report both pain levels and drug exposure in final results without any assumption of substitution.

Functional outcomes need to be considered as well. Statistically significant difference of one point does not imply an important benefit for each individual. Attendance, sleep, satisfaction and side-effects would help to clarify the importance of observed differences.

Limitations

The main limitation is that all the numerical results are purely simulated. They do not contain any data regarding the real participants and the safety of the treatment.

The proposed observational study design will suffer from confounding, reporting bias, expectation effect and overlapping self-care activities. Three follow-ups will not be enough to conclude on long-term benefits. Screening can fail to detect the existence of secondary conditions, and aggregated results cannot be used in adjusted regression and missing-data analysis.

Last but not least, the proposed program is based on Ayurveda but involves practices used in other care modalities. Results cannot be used to justify the entire Ayurveda or extend it to medicinal preparations and invasive techniques.

Conclusion

Evaluation of Ayurvedic practices for the reduction of menstrual pain needs to include clear definition of interventions, prospective recording of symptoms, usual treatment and clinical screening. The simulated analysis uses consistent methodology and tables to evaluate the self-care program. Any conclusion regarding benefit or harm needs to

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be made on the basis of observed data and be proportional to the limitations of nonrandomized study design.

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