



TO COMPARE THE EFFECTIVENESS OF HATHA YOGA AND AEROBIC EXERCISES TO IMPROVE THE QUALITY OF LIFE AMONG COLLEGE STUDENTS WITH DYSMENORRHEA

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KEYWORDS :

INTRODUCTION

Menstruation is a natural physiological process and a vital indicator of reproductive health in women of reproductive age. It reflects the proper functioning of the hypothalamic-pituitary-ovarian axis, which regulates hormonal changes necessary for ovulation and endometrial preparation. The menstrual cycle typically lasts between 28 and 35 days, although variations are common due to individual and environmental factors. The cyclical changes in estrogen and progesterone lead to the thickening and subsequent shedding of the uterine lining in the absence of fertilization. This process is essential for reproductive capability and overall hormonal balance¹.

Dysmenorrhea is one of the most common menstrual disorders, characterized by painful cramps in the lower abdomen occurring before or during menstruation. It significantly affects the quality of life of many women, limiting their ability to perform daily activities. The condition may also be accompanied by systemic symptoms such as nausea, vomiting, fatigue, and dizziness, which further exacerbate discomfort. In addition to physical symptoms, dysmenorrhea can negatively impact emotional well-being, academic performance, and social participation among young women³.

In addition, yoga encourages relaxation and emotional balance, which further helps in reducing menstrual distress. Hence, yoga can be considered an effective complementary therapy for women with dysmenorrhea²⁹.

Therefore, healthcare professionals are essential in supporting holistic management approaches for dysmenorrhea. The present study aims to compare the effectiveness of Hatha Yoga and aerobic exercise in reducing pain and improving quality of life among individuals with primary dysmenorrhea, thereby contributing to evidence-based non-pharmacological management strategies⁴⁰.

Objectives of the Study

1. To evaluate the effectiveness of Hatha Yoga in reducing menstrual pain and improving quality of life among college students with dysmenorrhea
2. To evaluate the effectiveness of aerobic exercise in reducing menstrual pain and improving quality of life among college students with dysmenorrhea
3. To compare the effectiveness of Hatha Yoga and aerobic exercise on menstrual pain and quality of life among college students with dysmenorrhea

METHODOLOGY

Study Design: Comparative study design was adopted to evaluate and compare the effectiveness of Hatha Yoga and aerobic exercise in reducing pain and improving quality of life among individuals with primary dysmenorrhea.

Study Setting: The study was conducted in selected colleges after obtaining formal permission from the respective institutional authorities.

Study Population: The study population consisted of female college students aged between 18 and 25 years

Sample Size: Thus $n = 0.22118$ divided by $0.0025 = 88$ (round off to 60)

So, it is approximately 88 participants required to estimate the proportion with a margin of error of 0.05 and a 95% confidence level with 10% drop out the required sample size – 78, With 20% drop out the required sample size – 68.

Sampling Technique: A convenient sampling technique was used to recruit participants who met the inclusion criteria. Following recruitment, participants were randomly allocated into two groups using a simple randomization method to minimize selection bias and ensure comparability between the groups

Sampling Selection

Inclusion Criteria

- Female students aged between 18–25 years¹.
- Individuals diagnosed with primary dysmenorrhea³.
- Participants with regular menstrual cycles⁴.

Exclusion Criteria

- Individuals with secondary dysmenorrhea¹.
- History of gynecological disorders such as endometriosis or fibroids².
- Recent abdominal or pelvic surgery³.

Procedure

Following ethical approval and informed consent, participants fulfilling the inclusion criteria were recruited for the study. A total of 40 participants with primary dysmenorrhea were randomly assigned into two equal groups using a random allocation method.

Group A (Hatha Yoga): Participants performed a structured Hatha Yoga programme consisting of selected asanas, pranayama, and relaxation techniques under supervision for 30–45 minutes per session, five days per week, for four consecutive weeks.

Group B (Aerobic Exercise): Participants performed a structured aerobic exercise programme under supervision for 30–45 minutes per session, five days per week, for four consecutive weeks.

7. Data Analysis

The collected data were tabulated and analyzed using both descriptive and inferential statistics. All the parameters were assessed using statistical package for social science (SPSS) version 24, with a significance level of p value less than 0.05 and 95% confidence interval set for all analysis.

Table- 3 Comparison of Wallid Score within Group – A and Group- B Between Pre Test and Post Test

Groups	Pre Test		Post Test		t - test	Significance
	Mean	S.D	Mean	S.D		
Group- A	7.35	1.72	2.30	1.62	27.35	.001**
Group- B	8.10	1.83	3.90	1.61	16.31	.001**

The above table reveals the Mean, Standard Deviation (S.D), t-value and p-value between pre-test and post-test within Group – A & Group – B.

There is a statistically significant difference between the pre test and post test values within Group A and Group B at $P \leq 0.05$.

Table – 4 Comparison of SF - 36 Score within Group – A and Group - B Between Pre Test and Post Test

Groups	Pre Test		Post Test		t - test	Significance
	Mean	S.D	Mean	S.D		
Group- A	16.65	1.72	21.65	1.34	-7.89	.001**
Group- B	16.20	2.35	19.35	2.77	7.54	.001**

The above table reveals the Mean, Standard Deviation (S.D), t-value and p-value between pre-test and post-test within Group – A & Group – B.

There is a statistically significant difference between the pre test and post test values within Group A and Group B at $P \leq 0.05$.

On comparing the Mean Values of Group A & Group B on WaLLID Score, it shows a significant decrease in the post test mean values in both groups, but (Group A) shows 2.30 ± 1.62 which has the lower mean value is more effective than (Group B) 3.90 ± 1.61 at $P \leq 0.05$. Hence the null hypothesis is rejected.

On comparing the Mean Values of Group A & Group B on SF - 36 Score, it shows a significant increase in the post test mean values in both groups, but (Group A) shows 21.62 ± 1.34 which has the higher mean value is more effective than (Group B) 19.35 ± 2.77 at $P \leq 0.05$. Hence the null hypothesis is rejected.

On comparing Pre test and Post test within Group A & Group B on WaLLID Score & SF - 36 Score shows significant difference in the mean values at $P \leq 0.05$.

8. DISCUSSION

The present study was undertaken to compare the effectiveness of Hatha Yoga and aerobic exercise in reducing pain intensity and improving quality of life among individuals suffering from primary dysmenorrhea. Primary dysmenorrhea is a highly prevalent condition affecting adolescent girls and young women, often leading to significant physical discomfort, psychological distress, and limitations in daily activities. Chaudhary et al. highlighted the high burden and prevalence of dysmenorrhea among Indian students, emphasizing its impact on academic performance, daily functioning, and quality of life. Considering the limitations and side effects associated with pharmacological treatments, there has been increasing interest in non-pharmacological approaches such as exercise and yoga for symptom management. In this context, the present study contributes to the existing body of knowledge by evaluating and comparing two widely recommended interventions—Hatha Yoga and aerobic exercise—using standardized outcome measures, namely the WaLLID scale for pain intensity and the SF-36 questionnaire for quality of life.

The findings of the present study are consistent with those reported in previous research. Zahra Rakhshae et al. conducted a randomized clinical trial and found that yoga postures significantly reduced the severity and duration of menstrual pain among women with primary dysmenorrhea. Similarly, Sharma et al. reported that Hatha Yoga effectively decreased pain intensity, stress levels, and menstrual discomfort among young women. These studies support the conclusion that yoga is an effective non-pharmacological intervention for menstrual pain management.

In conclusion, the present study demonstrated that both Hatha Yoga and aerobic exercise are effective non-pharmacological

interventions for reducing pain and improving quality of life among individuals with primary dysmenorrhea. However, Hatha Yoga was found to be more effective than aerobic exercise, likely because of its holistic approach that addresses both physical and psychological aspects of health. These findings support the integration of yoga into routine clinical practice, health education programs, and community-based interventions aimed at managing primary dysmenorrhea and promoting women's health.

The enhanced effectiveness of Hatha Yoga may be attributed to its holistic nature, integrating physical postures (asanas), breathing techniques (pranayama), and relaxation practices. These elements collectively contribute to improved pelvic circulation, reduction in muscle tension, modulation of stress response, and better hormonal balance. In contrast, aerobic exercise, while effective in reducing pain through mechanisms such as endorphin release and improved blood flow, primarily addresses the physical aspect of dysmenorrhea and may lack the comprehensive mind-body benefits seen with yoga.

Additionally, the results of the present study highlight the importance of adopting a patient-centered and holistic approach in the management of primary dysmenorrhea. Since the condition involves not only physical discomfort but also emotional and functional limitations, interventions that simultaneously address multiple dimensions of health are likely to produce better outcomes. Hatha Yoga, by integrating physical activity with relaxation and mindfulness, appears to fulfill this requirement more effectively than conventional exercise alone.

Future research with larger sample sizes and longer follow-up periods is recommended to further validate the long-term effectiveness of Hatha Yoga and explore its impact on additional physiological and psychological parameters associated with primary dysmenorrhea.

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