

A Study to Assess the Effectiveness of Yoga Techniques for Reducing Dysmenorrhea Pain Among Adolescent Girls in Selected Schools of Jabalpur Mp

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Abstract—Aim: The study aimed to assess the effectiveness of yoga techniques in reducing dysmenorrhea among adolescent girls in selected schools. **Objectives:** To assess the level of dysmenorrhea pain among adolescent girls in the experimental and control groups before the intervention. To evaluate the effectiveness of yoga techniques in reducing dysmenorrhea pain among adolescent girls in the experimental group. To compare the post-test pain scores between the experimental and control groups. To determine the association between the level of dysmenorrhea pain and selected demographic and clinical variables.

Methodology: A quantitative research approach with a quasi-experimental pre-test and post-test control group design was adopted. The study was conducted among 60 adolescent girls aged 13–18 years from selected schools. Participants were selected using purposive sampling and equally allocated to experimental (n=30) and control (n=30) groups. Baseline pain levels were assessed using the WaLIDD Scale. The experimental group received selected yoga techniques for 15–30 minutes daily during the first three days of menstruation over the intervention period, whereas the control group received routine care without any intervention. Data were analyzed using descriptive and inferential statistics.

Results: The findings revealed a significant reduction in dysmenorrhea pain among adolescent girls in the experimental group following the yoga intervention compared with the control group. The post-test mean pain score of the experimental group was significantly lower than the pre-test score, indicating that yoga techniques were effective in reducing menstrual pain. A

significant association was also observed between dysmenorrhea pain and selected demographic and clinical variables.

Conclusion: The study concluded that yoga techniques are an effective, safe, economical, and non-pharmacological intervention for reducing dysmenorrhea among adolescent girls. Regular practice of yoga can improve menstrual health, decrease pain intensity, reduce school absenteeism, and enhance the quality of life of adolescent girls. The findings support the incorporation of yoga into school health programmes and nursing practice for menstrual pain management.

Index Terms—Dysmenorrhea, Yoga Techniques, Adolescent Girls, Menstrual Pain, Non-pharmacological Intervention, WaLIDD Scale, School Health.

I. INTRODUCTION

Adolescence is a crucial stage of physical, psychological, emotional, and reproductive development. During this period, girls undergo various hormonal changes, including the onset of menstruation. Although menstruation is a normal physiological process, many adolescent girls experience dysmenorrhea, characterized by painful menstrual cramps that may interfere with routine activities, school attendance, concentration, and quality of life. Dysmenorrhea is one of the leading causes of absenteeism among adolescent girls and often results in decreased academic performance and emotional distress.

Conventional management of dysmenorrhea mainly includes analgesics and non-steroidal anti-inflammatory drugs (NSAIDs). However, prolonged use of medications may lead to adverse effects. Consequently, there is growing interest in non-pharmacological interventions such as yoga, relaxation exercises, breathing techniques, and lifestyle modification. Yoga improves flexibility, enhances blood circulation, reduces stress, and promotes physical and mental relaxation, making it an effective complementary therapy for menstrual pain management.

Considering the increasing prevalence of dysmenorrhea among adolescents and the benefits of yoga, the present study was undertaken to evaluate the effectiveness of selected yoga techniques in reducing dysmenorrhea pain among adolescent girls.

II. BACKGROUND OF THE STUDY

Menstruation is a natural biological process that marks reproductive maturity in adolescent girls. However, dysmenorrhea is one of the most common menstrual disorders experienced during adolescence. It is characterized by painful uterine cramps occurring before or during menstruation and is often associated with symptoms such as nausea, fatigue, headache, lower back pain, and irritability. Globally, the prevalence of dysmenorrhea ranges from 45% to 90%, with adolescent girls being the most affected population.

The pain associated with dysmenorrhea may negatively influence physical, psychological, social, and educational aspects of adolescents' lives. Many girls rely on medications for pain relief, although non-pharmacological methods have gained increasing attention due to their safety and effectiveness. Yoga integrates physical postures, breathing exercises, and relaxation techniques that help reduce muscle tension, improve circulation, regulate hormonal balance, and decrease stress. Previous studies have demonstrated that regular yoga practice significantly reduces menstrual pain intensity and improves overall quality of life. Therefore, yoga has emerged as a promising complementary therapy for dysmenorrhea management.

III. NEED FOR THE STUDY

Dysmenorrhea is highly prevalent among adolescent girls and remains one of the major causes of school absenteeism, reduced academic performance, and decreased quality of life. Despite its high prevalence, many adolescents continue to manage menstrual pain through self-medication without adopting healthy lifestyle practices or non-pharmacological interventions. Although analgesics provide temporary relief, they may be associated with adverse effects when used frequently.

Yoga is an inexpensive, safe, and easily accessible intervention that can be practiced without special equipment. Scientific evidence suggests that yoga effectively reduces menstrual pain, enhances physical fitness, decreases stress, and improves emotional well-being. However, limited research has been conducted to evaluate the effectiveness of yoga among adolescent girls in school settings. Therefore, there is a need to assess the effectiveness of yoga techniques in reducing dysmenorrhea pain. The findings of this study will contribute to nursing practice, school health programmes, and adolescent health promotion by providing evidence for a simple, non-pharmacological approach to managing menstrual pain.

IV. OBJECTIVES OF THE STUDY

1. To assess the level of dysmenorrhea pain among adolescent girls in the experimental and control groups before the intervention.
2. To evaluate the effectiveness of yoga techniques in reducing dysmenorrhea pain among adolescent girls in the experimental group.
3. To compare the post-test pain scores between the experimental and control groups.
4. To determine the association between the level of dysmenorrhea pain and selected demographic and clinical variables.

V. HYPOTHESES

(All hypotheses will be tested at a 0.05 level of significance.)

H₁: There will be a statistically significant reduction in the level of dysmenorrhea pain among adolescent girls in the experimental group after the implementation of yoga techniques.

H₂: There will be a statistically significant association between the post-test level of dysmenorrhea pain and selected demographic variables among adolescent girls in the experimental group.

H₃: There will be a statistically significant association between the post-test level of dysmenorrhea pain and selected clinical variables among adolescent girls in the experimental group.

VI. ASSUMPTIONS

- Most adolescent girls experience varying degrees of dysmenorrhea during menstruation.
- Regular practice of selected yoga techniques helps reduce the severity of dysmenorrhea pain.
- Adolescent girls will actively participate and perform the yoga techniques as instructed.
- Yoga is a safe, acceptable, and feasible non-pharmacological intervention for adolescent girls.

VII. OPERATIONAL DEFINITIONS

Assess:

In this study, assess refers to the systematic measurement of the intensity of dysmenorrhea pain among adolescent girls using the WaLIDD Scale before and after the intervention.

Effectiveness:

Effectiveness refers to the extent to which the selected yoga techniques reduce the intensity of dysmenorrhea pain among adolescent girls as measured by the difference between pre-test and post-test WaLIDD Scale scores.

Yoga Techniques:

In this study, yoga techniques refer to the selected yoga postures (Cat Pose, Cow Pose, Cobra Pose, Butterfly Pose, and Child's Pose) practiced for approximately 15–30 minutes during the first three days of menstruation to reduce dysmenorrhea pain.

Dysmenorrhea:

Dysmenorrhea refers to painful menstrual cramps experienced during menstruation, including lower abdominal pain, pelvic pain, lower back pain, and pain radiating to the thighs.

Adolescent Girls:

Adolescent girls refer to female students aged 13–18 years studying in selected schools who have attained menarche and experience dysmenorrhea.

VIII. DELIMITATIONS

- The study is limited to adolescent girls aged 13–18 years.
- The study is conducted only in selected schools.
- The sample size is limited to 60 participants (30 in the experimental group and 30 in the control group).
- The intervention is limited to selected yoga techniques practiced for 15–30 minutes during the first three days of menstruation.
- The duration of the study is limited to six weeks.

IX. MATERIALS AND METHODS

Research Approach

A quantitative research approach was adopted to evaluate the effectiveness of yoga techniques in reducing dysmenorrhea among adolescent girls. This approach was considered appropriate as it enabled the investigator to objectively measure pain levels before and after the intervention.

Research Design

A quasi-experimental pre-test and post-test control group design was used. The study included an experimental group, which received yoga intervention, and a control group, which received routine care.

Variables

- Independent Variable: Yoga techniques.
- Dependent Variable: Level of dysmenorrhea pain.
- Demographic Variables: Age, educational status, age at menarche, menstrual cycle pattern, duration of menstrual flow, family history of dysmenorrhea, and other selected variables.

Setting of the Study

The study was conducted in selected schools of Jabalpur, Madhya Pradesh.

Population

The target population consisted of adolescent girls aged 13–18 years who had attained menarche and experienced primary dysmenorrhea.

Sample

The sample included 60 adolescent girls, with 30 participants in the experimental group and 30 in the control group.

Sampling Technique

A non-probability purposive sampling technique was used to select participants who fulfilled the inclusion criteria.

Inclusion Criteria

The study included adolescent girls aged 13–18 years, who had attained menarche, experienced primary dysmenorrhea, and were willing to participate.

Exclusion Criteria

Girls with secondary dysmenorrhea, chronic illnesses, pelvic disorders, or those already practicing yoga regularly were excluded.

Research Tool

The tool consisted of:

- Section A: Demographic and clinical variables.
- Section B: WaLIDD Scale to assess dysmenorrhea pain.

Intervention

The experimental group practiced selected yoga techniques (Cat Pose, Cow Pose, Cobra Pose, Butterfly Pose, and Child's Pose) for 15–30 minutes during the first three days of menstruation. The control group received no intervention.

Validity and Reliability

The research tool and yoga protocol were validated by experts in nursing, obstetrics and gynecology, and yoga. Reliability of the WaLIDD Scale was established before the main study.

Pilot Study

A pilot study was conducted on a small group of participants to assess the feasibility of the study, clarity of the tool, and practicality of the intervention.

Ethical Considerations

Ethical approval was obtained from the Institutional Ethics Committee. Permission was secured from the school authorities, and informed consent was obtained from the participants and their parents/guardians.

Confidentiality and anonymity were maintained throughout the study.

Data Collection Procedure

A pre-test was conducted using the WaLIDD Scale. The experimental group received yoga training, while the control group received routine care. After completion of the intervention period, a post-test was conducted using the same tool.

Plan for Data Analysis

Data were analyzed using descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics (paired t-test, unpaired t-test, and Chi-square test). A p-value of less than 0.05 was considered statistically significant.

X. RESULT

1. Findings Related to Socio-Demographic Variables

- Regarding age, the majority of adolescent girls 22 (36.7%) were 15–16 years, followed by 20 (33.3%) who were 17 years, and 18 (30.0%) who were 18 years.
- With respect to the type of family, the majority 38 (63.3%) belonged to nuclear families, while 22 (36.7%) belonged to joint families.
- Regarding the educational status of fathers, most 26 (43.3%) had completed secondary education, followed by 20 (33.3%) with higher secondary education.
- Regarding the educational status of mothers, the majority 25 (41.7%) had completed secondary education.
- With respect to occupation, the majority of fathers 40 (66.7%) were employed, whereas 45 (75.0%) mothers were homemakers.
- Regarding monthly family income, most participants 31 (51.7%) belonged to the middle-income group.
- The majority 36 (60.0%) resided in urban areas.
- Regarding dietary pattern, 39 (65.0%) followed a mixed diet, while 21 (35.0%) followed a vegetarian diet.
- Regarding physical exercise, 41 (68.3%) reported not performing regular exercise, whereas 19 (31.7%) performed regular exercise.

2. Findings Related to Clinical Variables

- The majority 34 (56.7%) attained menarche between 12–13 years, while 26 (43.3%) attained menarche after 13 years.
- Most participants 45 (75.0%) had regular menstrual cycles, whereas 15 (25.0%) had irregular cycles.
- Regarding menstrual flow, 38 (63.3%) had a duration of 3–5 days, while 22 (36.7%) had menstrual flow lasting more than 5 days.
- A family history of dysmenorrhea was present in 33 (55.0%) participants.
- Associated symptoms such as bloating, nausea, vomiting, fatigue, and school absenteeism were reported by varying proportions of the participants.

3. Findings Related to the Level of Dysmenorrhea Pain

The pre-test findings revealed that the majority of adolescent girls in the experimental group, 18 (60.0%), had moderate dysmenorrhea pain, while 8 (26.7%) experienced severe pain and 4 (13.3%) had mild pain. Following the yoga intervention, there was a marked reduction in pain intensity, with 22 (73.3%) participants reporting mild pain and the remaining 8 (26.7%) reporting moderate pain. None of the participants experienced severe pain during the post-test. In contrast, the control group continued to have predominantly moderate to severe pain during the post-test, with only minimal improvement in pain levels.

4. Findings Related to the Effectiveness of Yoga Technique

The study findings demonstrated that yoga techniques were highly effective in reducing dysmenorrhea pain among adolescent girls. The experimental group showed a significant reduction in the mean post-test pain score compared to the pre-test score. The calculated paired t-value ($t = 15.88, p < 0.05$) indicated a statistically significant improvement after the yoga intervention. In comparison, the control group showed only slight changes in pain scores. Therefore, the study concluded that yoga techniques were effective in reducing dysmenorrhea pain, and the research hypothesis (H_1) was accepted.

5. Findings Related to the Association Between Dysmenorrhea Pain and Selected Socio-Demographic Variables

The analysis revealed a statistically significant association between dysmenorrhea pain and selected socio-demographic variables, namely age and regular exercise. However, no statistically significant association was found between dysmenorrhea pain and other socio-demographic variables such as type of family, educational status of parents, occupation of parents, monthly family income, place of residence, and dietary pattern.

6. Findings Related to the Association Between Dysmenorrhea Pain and Selected Clinical Variables

The study found a statistically significant association between dysmenorrhea pain and selected clinical variables, including age at menarche, family history of dysmenorrhea, and irregular menstrual cycle. However, no significant association was observed between dysmenorrhea pain and other clinical variables such as duration of menstrual flow, heavy menstrual bleeding, bloating, nausea, vomiting, fatigue, faintness, and school absenteeism during menstruation. These findings suggest that only specific clinical characteristics were significantly related to the severity of dysmenorrhea pain among the participants.

XI. CONCLUSION

The present study was conducted to assess the effectiveness of yoga techniques for reducing dysmenorrhea among adolescent girls in selected schools of Jabalpur, Madhya Pradesh. The findings of the study revealed that most participants experienced moderate dysmenorrhea pain during the pre-test assessment. Following the implementation of the yoga intervention, there was a significant reduction in the level of pain among the adolescent girls in the experimental group, whereas the control group showed only minimal improvement. The statistical analysis confirmed that the reduction in pain was highly significant, indicating that the yoga technique was effective in alleviating dysmenorrhea.

The study also found significant associations between dysmenorrhea pain and selected demographic and clinical variables, such as age, regular exercise, age at menarche, family history of dysmenorrhea, and

irregular menstrual cycle. However, no significant association was observed with other selected demographic and clinical variables.

Overall, the study concludes that yoga is a safe, simple, cost-effective, and non-pharmacological intervention for reducing dysmenorrhea among adolescent girls. Regular practice of yoga can effectively decrease menstrual pain, improve physical comfort, and enhance daily functioning and quality of life. Therefore, yoga techniques can be recommended as an effective complementary approach for the management of primary dysmenorrhea among adolescent girls.

XII. IMPLICATION

Implications for Nursing Education

- Yoga techniques should be included in the nursing curriculum as a non-pharmacological approach for managing dysmenorrhea.
- Nursing students should receive theoretical and practical training on menstrual health and yoga techniques.
- Health education programmes should be organized to increase awareness among adolescent girls regarding the benefits of yoga in reducing menstrual pain.
- Nursing educators should encourage evidence-based teaching strategies for menstrual health management.

Implications for Nursing Practice

- Nurses should educate adolescent girls about the importance of regular yoga practice for relieving dysmenorrhea.
- School health nurses can conduct regular yoga demonstrations and menstrual health education sessions.
- Nurses should promote non-pharmacological pain management methods before relying on analgesics whenever appropriate.
- Yoga can be incorporated into school health and adolescent health programmes to improve menstrual well-being.

Implications for Nursing Administration

- Nursing administrators should encourage the implementation of yoga-based health promotion programmes in schools and community settings.

- Training workshops should be organized to improve nurses' competency in teaching yoga techniques.
- Educational materials such as booklets, posters, and videos on yoga for dysmenorrhea should be developed and distributed.
- Adequate resources and support should be provided for implementing adolescent menstrual health programmes.

Implications for Nursing Research

- Similar studies should be conducted with larger sample sizes to increase the generalizability of the findings.
- Comparative studies can be undertaken to compare yoga with other non-pharmacological interventions for dysmenorrhea.
- Longitudinal studies should be conducted to evaluate the long-term effectiveness of yoga in reducing menstrual pain.
- Future research may assess the impact of yoga on quality of life, school absenteeism, psychological well-being, and daily activities among adolescent girls.
- Studies can also be conducted in different geographical settings and among different age groups to validate the findings.

XIII. RECOMMENDATIONS

Based on the findings of the present study, the following recommendations are made:

- A similar study may be conducted with a larger sample size to improve the generalizability of the findings.
- The study may be replicated in different schools, colleges, and community settings to compare the effectiveness of yoga among diverse populations.
- A comparative study may be conducted to evaluate the effectiveness of yoga with other non-pharmacological interventions such as stretching exercises, aerobic exercise, relaxation therapy, or acupressure in reducing dysmenorrhea.
- A randomized controlled trial may be undertaken to provide stronger evidence regarding the effectiveness of yoga techniques.

- A longitudinal study may be conducted to assess the long-term effects of regular yoga practice on dysmenorrhea and menstrual health.
- Similar studies may be carried out among adolescent girls of different age groups and socio-cultural backgrounds.
- Studies may be conducted to assess the effect of yoga on quality of life, school absenteeism, psychological well-being, and academic performance among adolescent girls with dysmenorrhea.
- Educational intervention studies may be undertaken to evaluate the effectiveness of structured teaching programmes on menstrual health and yoga practices.
- Future research may include objective physiological parameters along with pain assessment to evaluate the effectiveness of yoga more comprehensively.
- Further studies may be conducted to assess the cost-effectiveness and feasibility of incorporating yoga into school health programmes for adolescent girls.
- Factors such as dietary habits, stress, physical activity, sleep pattern, and lifestyle, which may influence dysmenorrhea pain, were not controlled during the study.
- The study did not compare yoga with other pharmacological or non-pharmacological methods of pain management.
- Follow-up assessment was limited; therefore, the sustained effect of yoga on dysmenorrhea over subsequent menstrual cycles could not be evaluated.

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XIV. LIMITATIONS OF THE STUDY

The present study had the following limitations:

- The study was limited to 60 adolescent girls, which may limit the generalizability of the findings.
- The study was conducted only in selected schools of Jabalpur, Madhya Pradesh; therefore, the findings cannot be generalized to all adolescent girls.
- The intervention period was of short duration, and the long-term effectiveness of yoga was not assessed.
- Only selected yoga techniques were included in the intervention.
- The study focused only on adolescent girls aged 13–18 years who had primary dysmenorrhea.
- The level of dysmenorrhea pain was measured using a self-reported pain assessment scale, which may be influenced by individual perception and response bias.
- Participants' adherence to practicing yoga outside the supervised sessions could not be completely monitored.

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