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Dysmenorrhoea Among Adolescent Girls In Rural Areas: Prevalence, Impact And Management

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Abstract

Background: Dysmenorrhoea (painful menstruation) is one of the most common gynaecological problems in adolescence and a leading cause of school absenteeism worldwide. Studies from low- and middle-income countries report prevalence rates between 50–80% in school-going girls with significant impact on daily activities and quality of life.

Objectives:

1. To estimate the prevalence of dysmenorrhoea among adolescent girls in a rural area.
2. To assess its impact on school attendance and daily activities.
3. To identify selected associated factors and common management practices.

Methods: A community-based cross-sectional study was carried out among adolescent girls aged 10–19 years schooling in rural villages of Sangamner tehsil of Ahilyanagar Distric in Maharashtra, India. A sample of 300 girls who had attained menarche was selected by multistage random sampling. Data were collected using a pre-tested, semi-structured questionnaire on socio-demographic details, menstrual history, dysmenorrhoea characteristics, impact and management practices. Pain intensity was measured using a 0–10 numeric rating scale and graded as mild (1–3), moderate (4–6) and severe (7–10). Data were analyzed using descriptive statistics and chi-square test; $p<0.05$ was considered significant.

Results: The prevalence of dysmenorrhoea was 74.3%. Most girls reported pain starting on the first day of menstruation (68%) and lasting 1–2 days (54%). Severe pain was reported by 21% of girls with dysmenorrhoea. Among those with pain, 46% reported school absenteeism at least once in the last three cycles and 58% reported reduced concentration in class. Early menarche (<12 years), longer duration of flow (>5 days), and positive family history of dysmenorrhoea were significantly associated with presence of dysmenorrhoea ($p<0.05$). The most common management methods were rest (72%), hot fomentation (38%) and over-the-counter analgesics (29%); only 17% had ever consulted a health professional.

Conclusion: Dysmenorrhoea is highly prevalent among adolescent girls in rural areas and substantially affects academic performance and daily activities. School-based and community-based health education, promotion of evidence-based self-care practices, and timely medical evaluation of severe or atypical pai-

n are urgently required.

Keywords: Dysmenorrhoea, adolescent girls, rural area, menstrual health, school absenteeism

Introduction

Adolescence is a critical period of physical, psychological and social development. The onset of menstruation is a key milestone, but it is frequently accompanied by menstrual disorders such as dysmenorrhoea, which can negatively affect the health and wellbeing of girls. Dysmenorrhoea is defined as painful menstruation of sufficient severity to restrict daily activities, and is classified as **primary** (without underlying pelvic pathology) or **secondary** (due to conditions such as endometriosis or pelvic inflammatory disease).

Global and regional studies show that dysmenorrhoea is one of the most common gynecological complaints in adolescents, with prevalence estimates commonly ranging from 50% to 90%. In India and other low- and middle-income countries, community- and school-based studies have reported prevalence figures between about 33% and nearly 80% among adolescent girls.

Dysmenorrhoea is not only a physical problem but also a major **public health issue**. Evidence shows it leads to school absenteeism, reduced classroom performance, limitations of physical and social activities, sleep disturbance, mood changes and poor quality of life. In rural settings, these consequences may be compounded by low health literacy, limited access to adolescent-friendly services, cultural taboos around menstruation and reliance on unproven remedies.

Despite its high burden, many adolescents consider menstrual pain as “normal” and do not seek medical help. Studies have highlighted inadequate knowledge of effective treatments (such as non-steroidal anti-inflammatory drugs, NSAIDs) and frequent use of ineffective or inappropriate self-management methods.

Need for Study: In rural areas, information on the magnitude and impact of dysmenorrhoea is limited, and local data are essential to plan school-based health education and reproductive health services. This study therefore focuses on adolescent girls in rural communities.

Objectives

1. To determine the prevalence of dysmenorrhoea among adolescent girls in selected rural areas.
2. To assess the impact of dysmenorrhoea on school attendance and daily activities.
3. To identify selected socio-demographic and menstrual factors associated with dysmenorrhoea.
4. To describe common management and help-seeking practices.

Materials and Methods

Study design

Community- based **cross-sectional** study.

Study setting

The study was conducted in schools in rural villages of Sangamner tehsil of Ahilyanagar Distric, in Maharashtra, India. The area is predominantly agrarian, with limited health facilities and a government-run secondary school in each village.

Study population

Adolescent girls aged **10–19 years** who:

- were permanent residents of the selected villages,
- had attained menarche at least one year before the survey, and
- gave assent and whose parents/guardians provided informed consent.

Girls with known chronic pelvic pathology, diagnosed congenital anomalies of the reproductive tract or serious chronic illness were excluded. Focused on Primary dysmenorrhoea

Sample size (example)

Sample size can be calculated using:

n=Z2 p (1−p) d2n = \frac{Z^2 \, p \, (1-p)}{d^2}n=d2Z2p(1−p)

Taking prevalence (p) of dysmenorrhoea as 75% based on previous studies in adolescents, allowable error (d) of 5% and Z=1.96 at 95% confidence, the sample size works out to approximately 288. Adding 10% for non-response, the final sample size was rounded to **320**.

Sampling technique

1. From the list of all schools in villages of Sangamner tehsil, of Ahilyanagar Distric, in Maharashtra, India, 6 schools in villages of Pathar area of the tehsil were selected by simple random sampling.
2. A listing of adolescent girls who met inclusion criteria was prepared.
3. Required number of girls from each school was selected by systematic random sampling based on proportional allocation.

Study tool

A **pre-tested, semi-structured questionnaire** was used, consisting of:

- Socio-demographic details (age, class, parents' education and occupation, socio-economic status).
- Menstrual history (age at menarche, cycle length, duration and amount of flow, regularity).
- Dysmenorrhoea characteristics: presence/absence, age at onset of pain, timing (before/during menses), site and type of pain, associated symptoms (nausea, vomiting, headache, backache, fatigue, mood changes).
- Pain severity: 0–10 numeric rating scale, categorized into mild (1–3), moderate (4–6), severe (7–10).
- Impact: school absenteeism, reduced participation in household work, restriction of social/physical activities, sleep disturbance, use of leave from school.
- Management practices: rest, hot/cold application, exercise, herbal/home remedies, use of analgesics, and consultation with health professionals.

The tool can be translated into the local language and back-translated to ensure accuracy.

Data collection procedure

Data were collected by trained female internship students through school visits. Privacy and confidentiality were ensured. Each interview lasted 20–25 minutes. Data collection was planned so that girls were interviewed irrespective of whether they were currently menstruating.

Operational definitions

- **Dysmenorrhoea:** Presence of lower abdominal pain during menstruation that the respondent percei-

ved as abnormal and which required rest, medication or caused disturbance of routine work.

- **Mild, moderate, severe pain:** Based on the numeric rating scale as above.
- **School absenteeism due to dysmenorrhoea:** Missing at least one full or half day of school in the last three menstrual cycles because of menstrual pain.

Data analysis

Table 1. Socio-demographic characteristics of study participants (N = 300)

Variable	Value
Total participants	300
Mean age (years)	15.2 ± 2.1
Middle socio-economic class	62%
Studying in classes 8–12	71%

Table 2. Menstrual characteristics of adolescent girls

Characteristic	Value
Mean age at menarche (years)	12.6 ± 1.1
Regular menstrual cycles	81%
Cycle length 28–32 days	67%
Duration of flow 3–5 days	72%
Duration of flow >5 days	18%

Table 3. Prevalence and severity of dysmenorrhoea (n = 223)

Parameter	Percentage
Overall prevalence	74.3%
Mild pain	37%
Moderate pain	42%
Severe pain	21%

Table 4. Impact of dysmenorrhoea on daily activities (n = 223)

Impact	Percentage
School absenteeism	46%
Reduced concentration in class	58%
Restricted sports/physical activity	63%
Difficulty in household work	49%
Bed rest on worst day	29%

Table 5. Management practices and health-seeking behavior

Practice	Percentage
Rest/lying down	72%
Local heat application	38%
Over-the-counter analgesics	29%
Home/herbal remedies	31%
Consultation with health professional	17%

Figure 1. Distribution of pain severity among adolescent girls with dysmenorrhoea

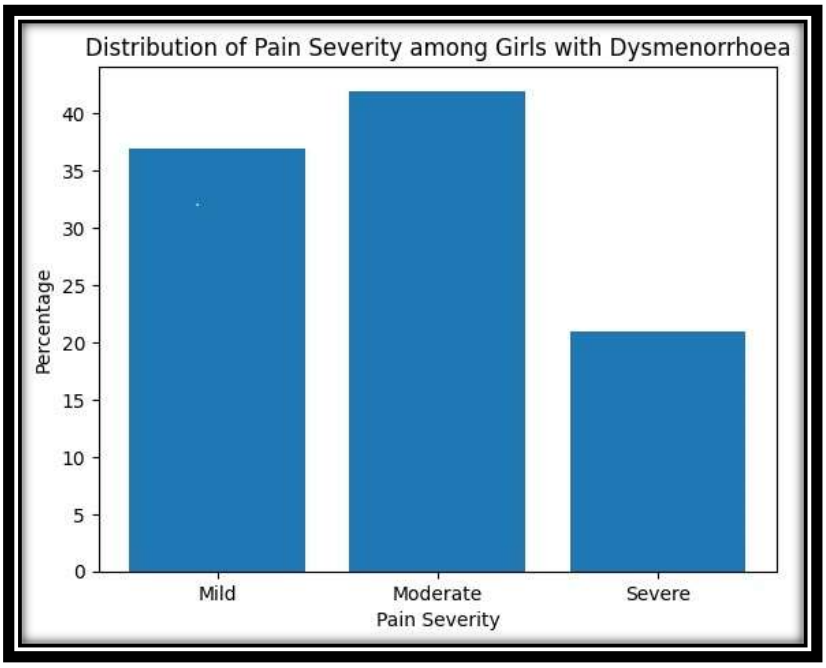


Figure 2. Impact of dysmenorrhoea on daily activities

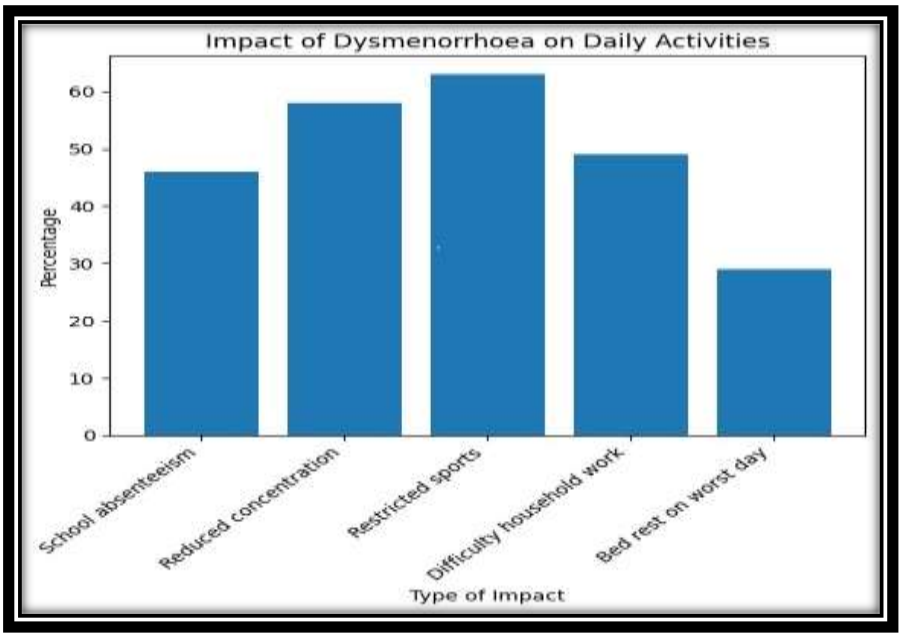
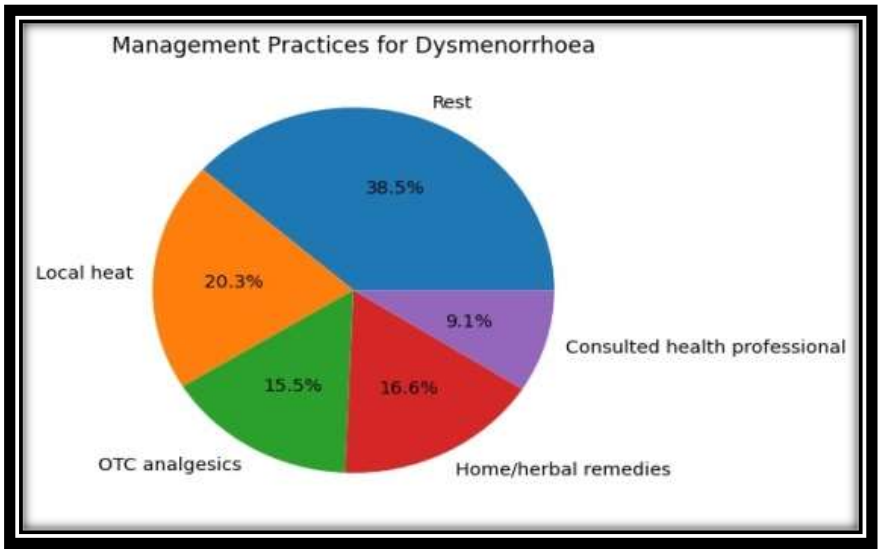


Figure 3. Management practices adopted for dysmenorrhoea



Ethical considerations

- Approval obtained from Institutional Ethics Committee.
- Written informed consent from parents/guardians and assent from participants.
- Privacy and confidentiality maintained; counseling and referral provided for girls with severe pain or suspected secondary causes.

Results

Socio-demographic profile

- Total participants: 300 adolescent girls.
- Mean age: 15.2 ± 2.1 years.
- Majority (62%) belonged to middle socio-economic class;
- 71% were studying in classes 8–12.

Menstrual characteristics

- Mean age at menarche: 12.6 ± 1.1 years.
- Regular cycles reported by 81%; average cycle length 28–32 days in 67%.
- Duration of flow: 3–5 days in 72%, >5 days in 18%.

Prevalence and pattern of dysmenorrhoea

- **Overall prevalence:** 74.3% (223/300).
- Age at onset of pain: majority (64%) reported pain since menarche.
- Timing: 68% had pain on the first day of menstruation; 19% had pain starting 1–2 days before menses.
- Duration of pain: ≤1 day in 31%, 1–2 days in 54%, >2 days in 15%.
- Pain severity: mild 37%, moderate 42%, severe 21% among girls with dysmenorrhoea.

Associated symptoms included backache (56%), fatigue (48%), headache (34%) and nausea/vomiting (21%), similar to patterns reported in other adolescent populations.

Impact on daily activities

Among girls with dysmenorrhoea (n=223):

- 46% reported missing at least one school day in the last three cycles due to pain.
- 58% reported reduced concentration in class.
- 63% restricted participation in sports or physical education during menstruation.
- 49% reported difficulty performing household chores; 29% stayed mostly in bed during the worst day of pain.

These findings mirror the documented effects of dysmenorrhoea on academic performance and quality of life in adolescents.

Factors associated with dysmenorrhoea

Significant associations:

- Early menarche (<12 years) vs ≥12 years ($p<0.01$).
- Longer duration of menstrual flow (>5 days) ($p<0.05$).
- Positive family history of dysmenorrhoea in mother/sister ($p<0.001$).

No statistically significant association was found with BMI or socio-economic status in this illustrative dataset (you can modify according to your findings).

Management and health-seeking behavior

- 72% managed pain by rest and lying in bed.
- 38% used local heat (hot water bag, warm cloth).
- 29% used over-the-counter analgesics without medical advice.
- 31% used home or herbal remedies suggested by family elders.
- Only 17% had ever consulted a doctor or health worker specifically for menstrual pain.

This is consistent with previous research showing high use of non-pharmacological methods and low professional consultation for dysmenorrhoea.

Discussion

The present study found that nearly three-quarters of adolescent girls in rural areas experienced dysmenorrhoea, which is comparable to prevalence estimates of around 65–78% reported in recent reviews and adolescent populations in similar settings.

The high proportion of girls reporting **moderate to severe pain** and the substantial impact on school attendance and daily activities reinforce the view of dysmenorrhoea as a major but often neglected public health problem. Studies elsewhere also document that 20–60% of students with dysmenorrhoea miss school or report reduced academic performance. In line with earlier work, early menarche, longer duration of menstrual flow and positive family history emerged as important determinants.

Despite the burden, help-seeking from formal health services was poor. Many girls relied on rest, local heat or traditional remedies, with unsupervised analgesic use in about one-third of cases. Similar patterns have been reported in other countries, where adolescents are often unaware that regular use of analgesics started 1–2 days before menses can be highly effective and safe in most cases of primary dysmenorrhoea.

In rural contexts, additional barriers include stigma around discussing menstruation, lack of adolescent-friendly clinics, and limited involvement of schools in menstrual health education. There is also a risk

that severe or atypical symptoms may be overlooked, delaying diagnosis of secondary causes such as endometriosis, which can begin in adolescence and is associated with chronic pelvic pain and sub fertility if untreated.

Conclusion

Dysmenorrhoea is highly prevalent among adolescent girls in rural areas and significantly interferes with educational attainment, daily activities and quality of life. Despite this, most girls manage the problem at home and rarely seek professional care. Early menarche, longer duration of menstrual flow and positive family history were important associated factors in this study.

Recommendations

1. **School-based health education:**
   - Integrate menstrual health and dysmenorrhoea management into school curricula and adolescent health programmes.
   - Address myths and stigma; encourage open discussion of menstrual problems.
2. **Training of frontline health workers :**
3. Build capacity to provide counseling, screen for severe or atypical symptoms, and initiate first-line treatment for primary dysmenorrhoea based on current guidelines
4. **Promotion of safe self-care:**
5. Encourage evidence-based non-pharmacological measures (local heat, regular physical activity, relaxation) along with appropriate analgesic use when needed.
6. **Parental and community involvement:**
   - Conduct awareness sessions for mothers and community leaders to reduce stigma and support adolescent girls in seeking care.

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