Section: Obstetrics and Gynaecology

Original Research Article

A CLINICAL PROFILE OF ADOLESCENT GYNECOLOGICAL PROBLEMS IN A TERTIARY CARE CENTER

Kanupriya Verma[1], Rajni Agrawal[2], Deepshikha Verma[3], Omkar Dipak Patil[4], Shamim Z Khan[4]

[1]Senior Resident, Department of Obstetrics and Gynaecology, Maharaja Agrasen Medical College, Agroha, Hisar, Haryana
[2]Associate Professor, Department of Obstetrics and Gynaecology, Maharaja Agrasen Medical College, Agroha, Hisar, Haryana
[3]Senior Resident, Department of Anaesthesiology, Maharaja Agrasen Medical College, Agroha, Hisar, Haryana
[4]Secondary DNB Resident, Department of Obstetrics and Gynaecology, Maharaja Agrasen Medical College, Agroha, Hisar, Haryana

Received : 05/10/2025
Received in revised form : 27/11/2025
Accepted : 15/12/2025

Keywords:
Adolescent gynecology, Menstrual disorders, Dysmenorrhea, Polycystic ovarian syndrome, Anemia.

Corresponding Author:
Dr. Rajni Agrawal,
Email: rajniagrawal2012@gmail.com

DOI: 10.47009/jamp.2026.8.1.41

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2026; 8 (1); 207-213

ABSTRACT

Background: Adolescent gynecological disorders constitute a significant proportion of reproductive health problems in developing countries, often affecting education, social participation, and long-term reproductive outcomes. The spectrum and pattern of these disorders vary with age, pubertal development, and sociodemographic factors. This study aimed to assess the prevalence and distribution of common gynecological problems among adolescent girls attending a tertiary care hospital in North India, with emphasis on age-related differences and clinical correlations. **Materials and Methods:** A hospital-based cross-sectional observational study was conducted among 338 adolescent girls aged 10–19 years attending the gynecology outpatient and inpatient departments of Gynaecology and Obstetrics, MAMC, Agroha, Hisar, Haryana, from January to December 2024. Detailed clinical history, physical examination, and relevant investigations including hemoglobin estimation, hormonal assays, and pelvic ultrasonography were performed as indicated. Data were analyzed using SPSS version 26.0. Descriptive statistics, Chi-square test, and t-test were applied, with a p-value <0.05 considered significant. **Result:** The mean age of participants was 16.2 ± 1.8 years; 26.6% were early adolescents (10–14 years) and 73.4% late adolescents (15–19 years). Menstrual disorders were the most common presenting complaint (62.1%), followed by dysmenorrhea (44.7%), leucorrhea (18.3%), and lower abdominal pain (14.2%). Functional dysmenorrhea (28.1%) and polycystic ovarian syndrome (14.2%) were the leading clinical diagnoses. PCOS prevalence was significantly higher in older adolescents (17.7% vs. 4.4%; p = 0.003). Anemia (Hb < 11 g/dL) was detected in 35.2%, more frequent among younger girls (45.6% vs. 31.5%; p = 0.052). Mean BMI and hemoglobin levels were significantly lower in early adolescents (p = 0.001 and p = 0.011, respectively). Ultrasonographic polycystic ovarian morphology correlated with clinical PCOS findings (p = 0.003). **Conclusion:** Menstrual disorders, dysmenorrhea, and PCOS are the predominant gynecological problems among adolescents in tertiary care settings, while anemia remains an important comorbidity, especially in younger girls. These findings emphasize the need for age-appropriate reproductive health services, early screening for anemia and hormonal disorders, and health education programs to promote timely care-seeking and preventive interventions.

INTRODUCTION

Adolescence represents a crucial period of transition from childhood to adulthood, marked by rapid physical growth, psychological development, and the onset of reproductive capability. The World Health Organization (WHO) defines adolescence as the age between 10 and 19 years.[1] During this period, the maturation of the hypothalamic–pituitary–ovarian (HPO) axis leads to menarche and cyclic hormonal changes, which may, however, remain unstable for

several years. Consequently, adolescent girls often experience a wide range of gynecological issues that differ in presentation and etiology from those seen in adults.[2]

Globally, adolescent girls constitute about 16% of the total female population, and in India, they account for approximately 20% of the total population.[3] Gynecological problems in this age group are common, with menstrual disorders being the most frequent cause for consultation, reported in 44–72% of adolescent girls across various studies.[4] Common presentations include dysmenorrhea, oligomenorrhea, menorrhagia, polymenorrhea, and amenorrhea, often attributable to immaturity of the HPO axis, stress, nutritional deficiencies, and endocrine disorders such as polycystic ovarian syndrome (PCOS).[5] PCOS has been increasingly reported in Indian adolescents, with prevalence rates ranging from 9% to 36% depending on diagnostic criteria and population studied.[6]

In addition to menstrual irregularities, adolescents may also present with leucorrhea, pelvic pain, genital infections, or ovarian cysts. The rising incidence of sexually transmitted infections (STIs) and teenage pregnancies, especially in urban and semi-urban populations, underscores the growing public health concern surrounding adolescent reproductive health.[7] Many of these problems are further compounded by inadequate sexual education, cultural taboos, limited access to adolescent-friendly healthcare services, and lack of awareness regarding menstrual hygiene practices.[8]

In India, sociocultural factors and gender norms often delay healthcare-seeking behavior among adolescent girls, resulting in late presentation and preventable complications.[9] In India, there is documented considerable regional variation in the spectrum and burden of adolescent gynecological disorders, reflecting differences in socioeconomic background, nutritional status, and health awareness.[10,11]

Tertiary care centers serve as crucial referral hubs providing comprehensive diagnostic and therapeutic services, thereby offering valuable insight into the epidemiological trends of adolescent gynecological problems. Analysis of such data can guide clinicians and policymakers in planning preventive strategies, strengthening school health programs, and developing targeted interventions to promote adolescent reproductive health.[12]

Therefore, the present study was undertaken with an aim to evaluate the spectrum, frequency, and clinical profile of gynecological problems among adolescent girls attending a tertiary care center.

MATERIALS AND METHODS

Study Design and Setting: The present study was a hospital-based cross-sectional observational study conducted in the Department of Gynaecology and Obstetrics, Maharaja Agrasen Medical College, Agroha, Hisar, Haryana. The hospital caters to both urban and rural populations and functions as a referral center for surrounding districts, thereby ensuring a heterogeneous and representative study sample. The study was carried out over a period of twelve months, from January 2024 to December 2024. During this period, all adolescent girls attending the outpatient department, emergency services, and those admitted to gynecology wards with gynecological complaints were screened for eligibility.

Study Population: The study population comprised adolescent girls aged 10 to 19 years as per the World Health Organization (WHO) definition of adolescence.[13] Participants were evaluated for gynecological problems such as menstrual disorders, dysmenorrhea, leucorrhea, pelvic pain, and reproductive tract infections. Only those who fulfilled the inclusion criteria and provided informed consent (with assent where required) were enrolled.

Eligibility Criteria

Girls aged between 10 and 19 years presenting with one or more gynecological complaints were included in the study. Participants were required to be willing to provide relevant clinical details and to undergo necessary investigations. Those with systemic illnesses unrelated to the reproductive system—such as chronic renal disease, thyroid disorders already under treatment, hematological malignancies, or known coagulopathies—were excluded. Pregnant adolescents presenting for antenatal care were excluded to maintain uniformity of analysis. Patients unwilling to participate or with incomplete records were also omitted.

Sample Size and Sampling Technique

Based on prior Indian study reporting a prevalence of adolescent gynecological problems ranging between 35% and 45%,[12] a prevalence of 40% was assumed for sample size estimation. Using the standard formula $n=Z^2pq/d$, where Z = 1.96 for a 95% confidence level, p = 0.4, q = 0.6, and d = 0.05 (allowable error), the minimum sample size was calculated to be 329. To account for possible non-response or incomplete data, a total of 338 adolescents were included in the final analysis. Sampling was done using a consecutive sampling method, wherein all eligible participants presenting during the study period were enrolled until the desired sample size was achieved.

Data Collection Procedure

Data were collected using a pretested, structured proforma specifically designed for the study. After obtaining ethical approval and informed consent, each participant was interviewed in privacy to collect detailed demographic information including age, residence, educational status, socioeconomic background (classified as per Modified Kuppuswamy scale), and dietary habits. Clinical history was obtained regarding age at menarche, regularity and duration of menstrual cycles, amount of menstrual flow, presence of dysmenorrhea, intermenstrual bleeding, premenstrual symptoms, vaginal discharge, and abdominal or pelvic pain.

ISSN (O): 2687-5365; ISSN (P): 2753-6556

History of sexual activity, contraception use, personal hygiene practices, and family history of menstrual disorders or PCOS was also documented.

A complete general examination was performed to record height, weight, and body mass index (BMI), with nutritional status categorized as per WHO growth charts. Systemic examination focused on signs of anemia, thyroid enlargement, hirsutism, or acne suggestive of hormonal imbalance. Local or per-abdominal examination was done when indicated and appropriate for the patient's age and consent status. Speculum or per-vaginal examinations were performed only in sexually active adolescents, ensuring privacy and comfort.

Investigations and Diagnostic Criteria

Relevant laboratory and imaging investigations were undertaken based on clinical presentation. Hemoglobin estimation, complete blood count, urine routine examination, and pregnancy tests were performed routinely where indicated. Endocrine evaluation included thyroid-stimulating hormone (TSH), serum prolactin, luteinizing hormone (LH), follicle-stimulating hormone (FSH), and fasting insulin levels in cases of menstrual irregularities or clinical suspicion of polycystic ovarian syndrome (PCOS). Pelvic ultrasonography was performed in all cases to evaluate uterine and adnexal pathology, assess ovarian morphology, and identify cysts or masses.

The diagnosis of PCOS was made based on the Rotterdam criteria,[14] requiring two of the following: (a) oligo- or anovulation, (b) clinical or biochemical signs of hyperandrogenism, and (c) polycystic ovarian morphology on ultrasonography. Menstrual disorders were categorized according to the International Federation of Gynecology and Obstetrics (FIGO) classification for abnormal uterine bleeding (AUB).[15] Cases of leucorrhea were evaluated with high vaginal swab microscopy and culture to identify infections, while pelvic inflammatory disease (PID) was diagnosed based on clinical and ultrasonographic findings.

Data Management and Statistical Analysis

All collected data were entered into Microsoft Excel and subsequently analyzed using the Statistical Package for the Social Sciences (SPSS) version 26.0 (IBM Corp., Armonk, NY, USA). Quantitative variables such as age, age at menarche, and BMI were expressed as mean ± standard deviation (SD), whereas categorical variables like menstrual pattern, type of disorder, and clinical diagnosis were presented as frequencies and percentages. The Chi-square test was used to compare proportions between categorical variables, and the independent t-test was applied for continuous variables when appropriate. A p-value of less than 0.05 was considered statistically significant.

Ethical Considerations

Ethical clearance for the study was obtained from the Institutional Ethics Committee. Written informed consent was obtained from parents or legal guardians of all participants, and assent was obtained from the adolescents themselves. Confidentiality and privacy were strictly maintained throughout data collection and analysis, and participants were assured that their personal details would not be disclosed. Counseling and appropriate treatment or referral were provided to all participants as per institutional clinical protocols.

RESULTS

The mean age was 16.2 ± 1.8 years, with 26.6% aged 10–14 years and 73.4% aged 15–19 years. Urban residence was significantly more common among older adolescents (64.0%) compared to the younger group (45.6%) (p = 0.001). A higher proportion of girls were pursuing education beyond the 5th standard (84.3%), with older adolescents showing greater school attendance (87.5% vs. 75.6%, p = 0.008). More than half of participants (53.8%) belonged to lower or lower-middle socioeconomic strata as per the Modified Kuppuswamy scale, with no significant age-group difference (p = 0.240). The overall mean BMI was 21.1 ± 3.8 kg/m², with a significantly lower mean among younger adolescents (19.8 ± 3.4) than older girls (21.6 ± 3.8, p = 0.001), reflecting the expected pubertal and nutritional progression with age [Table 1].

Table 1: Socio-demographic characteristics of study participants (n = 338).

Variable	Total (n = 338)	10–14 yrs (n = 90)	15–19 yrs (n = 248)	p-value
	Frequency (%)/Mean ± SD			
Age (in years)	16.2 ± 1.8	13.6 ± 1.1	16.9 ± 1.1	—
Residence				
Urban	199 (58.9%)	41 (45.6%)	158 (63.7%)	0.001
Rural	139 (41.1%)	49 (54.4%)	90 (36.3%)	
Schooling (>5th class)	285 (84.3%)	68 (75.6%)	217 (87.5%)	0.008
SES Lower / Lower-middle#	182 (53.8%)	53 (58.9%)	129 (52.0%)	0.240
BMI (kg/m²)	21.1 ± 3.8	19.8 ± 3.4	21.6 ± 3.8	0.001

BMI — Body Mass Index; #Socioeconomic status (Modified Kuppuswamy)

Menstrual disorders constituted the most frequent presenting complaint, reported by 62.1% of participants. Dysmenorrhea was the next most common complaint, affecting 44.7% overall, with a significantly higher prevalence in older adolescents (48.4%) compared to younger ones (34.4%) (p = 0.019). Symptoms suggestive of hormonal imbalance such as acne or hirsutism were noted in 21.3% participants and were also significantly more frequent in the 15–19-year age group (23.4% vs.

ISSN (O): 2687-5365; ISSN (P): 2753-6556

15.6%, p = 0.033). Non-menstrual lower abdominal or pelvic pain was observed in 14.2% overall, but paradoxically more common in the younger group (22.2% vs. 11.3%, p = 0.007). Leucorrhea was reported by 18.3%, with a trend toward higher frequency in older girls though not statistically significant (p = 0.078). Other minor complaints such as external genital lesions or trauma were rare (3%) [Table 2].

Table 2: Distribution of presenting complaints among study participants (n = 338).

Presenting complaint	Total (n = 338)	10–14 yrs (n = 90)	15–19 yrs (n = 248)	p-value
	Frequency (%)			
Any menstrual disorder (irregular menses, heavy bleeding, amenorrhea)	210 (62.1%)	52 (57.8%)	158 (63.7%)	0.171
Dysmenorrhea (painful menses)	151 (44.7%)	31 (34.4%)	120 (48.4%)	0.019
Leucorrhea / abnormal vaginal discharge	62 (18.3%)	11 (12.2%)	51 (20.6%)	0.078
Lower abdominal / pelvic pain (non-menstrual)	48 (14.2%)	20 (22.2%)	28 (11.3%)	0.007
Signs / suspicion of hormonal disorder (acne / hirsutism)	72 (21.3%)	14 (15.6%)	58 (23.4%)	0.033
Others (skin lesions, trauma, foreign body)	10 (3.0%)	2 (2.2%)	8 (3.2%)	0.586

Among the 320 participants who had attained menarche (Table 3), the mean age at menarche was 12.6 ± 1.1 years, significantly earlier in younger adolescents (12.4 ± 1.0) compared to the older group (12.7 ± 1.1) (p = 0.018). Regular menstrual cycles were reported by 60.9% overall, with older girls showing better cycle regularity (64.1% vs. 50.0%, p = 0.022). The mean cycle length was 30.8 ± 6.4 days, comparable between groups (p = 0.056). Heavy menstrual bleeding (>80 mL) affected 12.8% participants, and secondary amenorrhea was seen in 3.8%, with no significant age-wise difference. Premenstrual symptoms of moderate to severe intensity were reported by 26.6% overall, more common among older girls (28.6%) but without statistical significance (p = 0.099) [Table 3].

Table 3: Menstrual profile among menstruating participants (n = 320).

Characteristic	Total (n = 320)	10–14 yrs (n = 72)	15–19 yrs (n = 248)	p-value
	Frequency (%)/Mean ± SD			
Age at menarche (years)	12.6 ± 1.1	12.4 ± 1.0	12.7 ± 1.1	0.018
Cycle regularity — regular cycles	195 (60.9%)	36 (50.0%)	159 (64.1%)	0.022
Cycle length (days)	30.8 ± 6.4	32.1 ± 7.0	30.4 ± 6.1	0.056
Heavy menstrual bleeding (estimated loss >80 mL / clinical)	41 (12.8%)	10 (13.9%)	31 (12.5%)	0.686
Amenorrhea (secondary)	12 (3.8%)	4 (5.6%)	8 (3.2%)	0.388
Premenstrual symptoms (moderate–severe)	85 (26.6%)	14 (19.4%)	71 (28.6%)	0.099

Functional dysmenorrhea emerged as the most frequent diagnosis, present in 28.1% of the girls, without significant intergroup difference (p = 0.315). PCOS, diagnosed using the Rotterdam criteria, was noted in 14.2% overall, significantly higher among older adolescents (17.7%) than younger ones (4.4%) (p = 0.003). Abnormal uterine bleeding (AUB) was identified in 11.2%, predominantly anovulatory in pattern, and similar across age groups. Vulvovaginitis or nonspecific leucorrhea accounted for 12.4%, while ovarian cysts were observed in 6.5% and PID in 3.6%. Other less common diagnoses (labial adhesions, foreign body, vulval lesions) collectively comprised 3.3% [Table 4].

Table 4: Clinical diagnosis distribution among study participants (n = 338).

Diagnosis	Total (n = 338)	10–14 yrs (n = 90)	15–19 yrs (n = 248)	p-value
	Frequency (%)			
Functional dysmenorrhea	95 (28.1%)	22 (24.4%)	73 (29.4%)	0.315
Polycystic ovarian syndrome (PCOS) — Rotterdam criteria	48 (14.2%)	4 (4.4%)	44 (17.7%)	0.003
Abnormal uterine bleeding (AUB) — anovulatory / ovulatory	38 (11.2%)	10 (11.1%)	28 (11.3%)	0.907
Vulvovaginitis / nonspecific leucorrhea	42 (12.4%)	8 (8.9%)	34 (13.7%)	0.287
Pelvic inflammatory disease (PID) / complicated infection	12 (3.6%)	2 (2.2%)	10 (4.0%)	0.445
Ovarian cyst (functional / simple)	22 (6.5%)	8 (8.9%)	14 (5.6%)	0.211
Other (foreign body, labial adhesions, vulval lesions)	11 (3.3%)	4 (4.4%)	7 (2.8%)	0.359

PCOS — Polycystic Ovarian Syndrome; AUB — Abnormal Uterine Bleeding; PID — Pelvic Inflammatory Disease.

Anemia (Hb < 11 g/dL) was prevalent in 35.2% of participants, more common in younger girls (45.6%) than in older ones (31.5%), approaching statistical significance (p = 0.052). The mean hemoglobin level was 10.9 ± 1.6 g/dL, significantly lower in the younger age group (p = 0.011). Pelvic

ISSN (O): 2687-5365; ISSN (P): 2753-6556

ultrasonography revealed normal anatomy in 71% of girls overall. Polycystic ovarian morphology was identified in 14.2% of participants, significantly higher among the older group (17.7% vs. 4.4%, p = 0.003), aligning with clinical PCOS findings. Simple ovarian cysts (>3 cm) were noted in 10.4%, with no age difference (p = 0.599). Serum TSH abnormalities were detected in 5.3%, and among the 48 PCOS cases, clinically significant hyperandrogenism (acne/hirsutism) was present in 62.5%, predominantly in the 15–19-year cohort [Table 5].

Table 5: Laboratory and imaging findings among study participants (n = 338).

Investigation / Finding	Total (n = 338)	10–14 yrs (n = 90)	15–19 yrs (n = 248)	p-value
	Frequency (%)/Mean ± SD			
Hemoglobin < 11.0 g/dL (anemia)	119 (35.2%)	41 (45.6%)	78 (31.5%)	0.052
Mean hemoglobin, g/dL (SD)	10.9 ± 1.6	10.6 ± 1.7	11.0 ± 1.5	0.011
Pelvic ultrasound — normal appearance	240 (71.0%)	62 (68.9%)	178 (71.8%)	0.505
Pelvic ultrasound — polycystic ovarian morphology	48 (14.2%)	4 (4.4%)	44 (17.7%)	0.003
Pelvic ultrasound — simple ovarian cysts (>3 cm)	35 (10.4%)	8 (8.9%)	27 (10.9%)	0.599
Serum TSH abnormal (outside lab ref)	18 (5.3%)	6 (6.7%)	12 (4.8%)	0.485
Clinically significant hyperandrogenism (hirsutism/acne) among PCOS cases	30 / 48 (62.5%)	1 / 4 (25.0%)	29 / 44 (65.9%)	0.099

Hb — Hemoglobin; TSH — Thyroid Stimulating Hormone; PCOS — Polycystic Ovarian Syndrome.

DISCUSSION

In this hospital-based cross-sectional study of 338 adolescent girls, menstrual complaints were the predominant reason for seeking gynecological care (62.1%), followed by dysmenorrhea (44.7%), leucorrhea (18.3%), and non-menstrual lower abdominal pain (14.2%). Functional dysmenorrhea and polycystic ovarian syndrome (PCOS) were the leading clinical diagnoses (28.1% and 14.2%, respectively), while anemia (Hb < 11 g/dL) affected over one-third of participants (35.2%). Several age-related patterns emerged: older adolescents had higher rates of dysmenorrhea, clinical and sonographic features of PCOS, and better cycle regularity, whereas younger adolescents more often presented with non-menstrual pelvic pain and had lower mean hemoglobin and BMI in the studies by Tubid et al., Chandrakala et al., and Ravi et al.[16-18]

Our finding that menstrual disorders dominate the clinical workload of adolescent gynecology clinics is concordant with prior tertiary-centre reports from India and elsewhere, which have consistently documented menstrual problems as the most common complaint in this age group. Recent studies by Vasava et al., and Singh et al., from a tertiary referral setting similarly reported menstrual complaints as the major reason for presentation and a high burden of dysmenorrhea and cycle irregularities.[19,20] The observed dysmenorrhea prevalence in our sample (44.7%) is somewhat lower than pooled estimates from school and college surveys in India by Samal et al., and Kural et al., (many reporting 50–80% prevalence), which likely reflects differences in study populations (community vs clinic attendees), case definition (any vs. clinically significant dysmenorrhea), and health-seeking behavior.[21,22]

PCOS was diagnosed in 14.2% of our cohort using Rotterdam criteria and was concentrated in the 15–19-year group (17.7%). This prevalence is within the range reported in Indian adolescent and young-women studies by Mathur et al., and Sharma et al., (estimates vary widely depending on diagnostic criteria and population, commonly ~9–17% in clinic-based samples) and underscores the increasing recognition of metabolic-endocrine conditions among urbanizing adolescent populations.[23,24] Caution is warranted in interpreting adolescent PCOS prevalence because diagnostic features (oligo-ovulation, acne, polycystic ovarian morphology) may reflect normal pubertal maturation in early post menarcheal years. Many experts, therefore, recommend applying diagnostic criteria only after 2–3 years post-menarche or from mid-adolescence onwards unless signs are severe.[23,24] The observed age pattern — with a lower prevalence of PCOS in early adolescents (10–14 years) and a higher prevalence in late adolescents (15–19 years) — reflects the expected physiological maturation of the hypothalamic–pituitary–ovarian axis and is consistent with both Indian and international observations reported by Mathur et al., Sharma et al., and Bozdag et al.[9,10,25]

The high burden of anemia (35.2% overall, 45.6% in younger adolescents) in our sample mirrors multiple community studies by Samal et al., and Kural et al., showing persistently elevated anemia rates among Indian adolescent girls.[21,22] Studies by Tubid et al., Chandrakala et al., indicate anemia prevalence in adolescent girls commonly exceeds 50% in many states, highlighting nutritional deficiencies, menorrhagia, poor dietary iron intake, and health-service gaps as ongoing contributors.[16,17] Although our clinic-based estimate is slightly lower than some national averages, it remains clinically important and supports routine screening and targeted iron-folate interventions in adolescent gynecology services.[26]

Several factors likely explain the age-related differences observed. The higher prevalence of dysmenorrhea and PCOS features among older adolescents may reflect both longer time since menarche (allowing clearer manifestation of ovulatory dysfunction) and lifestyle changes

ISSN (O): 2687-5365; ISSN (P): 2753-6556

(increasing BMI, urbanization, sedentary behaviour) that are known PCOS risk correlates shown in the studies by Dhar et al., and Pogodina et al.[27,28] Our finding of a significantly higher mean BMI in late adolescents supports this hypothesis and is concordant with literature by He et al., linking adiposity to hyperandrogenic symptoms and cycle irregularity.[29] Conversely, younger adolescents' greater frequency of non-menstrual pelvic pain and lower hemoglobin probably reflect different etiologies (functional pain syndromes, acute infections, or higher vulnerability to nutritional deficiency in early adolescence).[30,31]

From a clinical and public-health perspective, these results reinforce several actionable points. First, adolescent-friendly gynecological services should prioritise accessible evaluation of menstrual disorders, dysmenorrhea management (including evidence-based use of NSAIDs and hormonal options), and counselling to reduce school absenteeism.[11,32] Second, robust protocols for screening and managing anemia (point-of-care Hb checks, counselling, iron-folate supplementation and dietary advice) should be integrated into adolescent clinics.[33] Third, suspected PCOS cases should be assessed using age-appropriate criteria (avoiding overdiagnosis in early post-menarcheal years), with emphasis on lifestyle modification and metabolic risk assessment where indicated.[34] Finally, health education on menstrual hygiene, nutrition, and when to seek care must target both adolescents and caregivers to reduce delays in presentation.[24,27]

Limitations

Strengths of our study include a reasonably large sample from a tertiary referral centre, systematic clinical evaluation and selective use of laboratory and ultrasound investigations, and stratified analysis by early vs late adolescence that highlighted age-specific patterns. Limitations include the hospital-based design (which may overrepresent symptomatic cases and limit generalizability to community populations), potential referral bias toward more severe or persistent problems, and selective testing (ultrasound and hormonal assays were performed based on clinical indication rather than universally), which could underestimate subclinical conditions. We also relied on self-reported menstrual histories for some variables, which may introduce recall bias.

CONCLUSION

In conclusion, adolescent girls presenting to a tertiary gynecology service in our setting mostly sought care for menstrual problems, with dysmenorrhea, PCOS and anemia representing major burdens. Our age-stratified findings — higher PCOS and dysmenorrhea in late adolescence, and greater anemia and non-menstrual pain in early adolescence — provide useful guidance for tailoring clinical pathways and public-health interventions. Strengthening adolescent-friendly, school-linked reproductive health services, routine anemia screening, and evidence-based PCOS evaluation are recommended to improve adolescent reproductive health outcomes in similar Indian contexts.

REFERENCES

1. Sawyer SM, Azzopardi PS, Wickremarathne D, Patton GC. The age of adolescence. Lancet Child Adolesc Health. 2018;2(3):223-228.
2. Carlson LJ, Shaw ND. Development of Ovulatory Menstrual Cycles in Adolescent Girls. J Pediatr Adolesc Gynecol. 2019;32(3):249-253.
3. Sivagurunathan C, Umadevi R, Rama R, Gopalakrishnan S. Adolescent health: present status and its related programmes in India. Are we in the right direction? J Clin Diagn Res. 2015;9(3):LE01-LE06.
4. Agarwal M, Singh S, Jyoti C, Sinha S, Simran S. Understanding Adolescent Gynecological Issues: A Cross-Sectional Study at a Tertiary Care Center. Cureus. 2024;16(4):e57713.
5. Pegu B, Gaur BPS, Yadav A, Yadav V. Gynecological problems among adolescent girls in a tertiary care centre of South Andaman district. Int J Adolesc Med Health. 2018;32(4):0193.
6. Bharali MD, Rajendran R, Goswami J, Singal K, Rajendran V. Prevalence of Polycystic Ovarian Syndrome in India: A Systematic Review and Meta-Analysis. Cureus. 2022;14(12):e32351.
7. Shannon CL, Klausner JD. The growing epidemic of sexually transmitted infections in adolescents: a neglected population. Curr Opin Pediatr. 2018;30(1):137-143.
8. Mitra S, Arora A, Shimpi A. Mapping Menstrual and Pelvic Health Scenario in India: A Scoping Review of Biopsychosocial Factors. Cureus. 2025;17(6):e85541.
9. Kadam DD, Saurabha US, Tiwari SC. Health needs of adolescent girls living in an urban slum of a metropolitan city-A mixed method approach. J Family Med Prim Care. 2019;8(8):2661-2666.
10. Rathod AD, Chavan RP, Pajai SP, Bhagat V, Thool P. Gynecological Problems of Adolescent Girls Attending Outpatient Department at Tertiary Care Center with Evaluation of Cases of Puberty Menorrhagia Requiring Hospitalization. J Obstet Gynaecol India. 2016;66(Suppl 1):400-406.
11. Waghmare BV, Jajoo S. Navigating the Challenges: A Comprehensive Review of Adolescent Gynecological Problems. Cureus. 2024;16(3):e56200.
12. Mathew MM, Pandikasalakal JC, Pillai JS. Adolescent Gynecological Problems in a Tertiary Care Center. J South Asian Feder Obst Gynae. 2024;16(1):25–28.
13. Singh JA, Siddiqi M, Parameshwar P, Chandra-Mouli V. World Health Organization Guidance on Ethical Considerations in Planning and Reviewing Research Studies on Sexual and Reproductive Health in Adolescents. J Adolesc Health. 2019;64(4):427-429.
14. Christ JP, Cedars MI. Current Guidelines for Diagnosing PCOS. Diagnostics (Basel). 2023;13(6):1113.
15. Mishra D, Sultan S. FIGO's PALM-COEIN Classification of Abnormal Uterine Bleeding: A Clinico-histopathological Correlation in Indian Setting. J Obstet Gynaecol India. 2017;67(2):119-125.
16. Tubid R. A Prospective Study of Adolescent Problems in Patients Attending OPD of Patliputra Medical College Dhanbad. IOSR-JDMS. 2019;18(8):29-32.
17. Chandrakala G, Patruni M. Study to access gynaecological problems in adolescent girls attending the gynaecology OPD at a private teaching institute, Telangana state, South India. Int J Clin Obstet Gynaecol. 2020;4(2):221-224.
18. Ravi R, Shah P, Palani G, Edward S, Sathiyasekaran BW. Prevalence of Menstrual Problems among Adolescent School Girls in Rural Tamil Nadu. J Pediatr Adolesc Gynecol. 2016;29(6):571-576.
19. Vasava D, Patel F, Tyagi A, Gavaniya G, Dadhaniya D, Thaker R. Menstrual problems of adolescent girls attending

ISSN (O): 2687-5365; ISSN (P): 2753-6556

urban tertiary care hospital: One-year study. Ind Jr Obst Gyne Res. 2022;15:1-5.
20. Singh G, Khanna A, Agarwal M, Singh VK, Sachan R. Menstrual health and related problems in adolescent girls of Lucknow district: a cross sectional study. Int J Community Med Public Health. 2018;26:5321.
21. Samal J, Shree N, Singh H. Prevalence and Factors Associated with Dysmenorrhea among Indian Students: A Systematic Review and Meta-analysis. J South Asian Feder Obs Gynae. 2025;17(2):248-258.
22. Kural M, Noor NN, Pandit D, Joshi T, Patil A. Menstrual characteristics and prevalence of dysmenorrhea in college going girls. J Family Med Prim Care. 2015;4(3):426-431.
23. Mathur A, Tiwari A. Prevalence of polycystic ovary syndromes (PCOS) in adolescent girls and young women: A questionnaire-based study, Indian J Obstet Gynecol Res. 2023;10(3):330-334.
24. Sharma M, Khapre M, Saxena V, Kaushal P. Polycystic ovary syndrome among Indian adolescent girls - A systematic review and metanalysis. Nepal J Epidemiol. 2021;11(3):1063-1075.
25. Bozdag G, Mumusoglu S, Zengin D, Karabulut E, Yildiz BO. The prevalence and phenotypic features of polycystic ovary syndrome: a systematic review and meta-analysis. Hum Reprod. 2016;31(12):2841-2855.
26. Revel-Vilk S, Ben-Ami T, Constantini N. Is it time to offer routine screening for iron deficiency in healthy adolescent females? Br J Haematol. 2025;207(4):1242-1247.
27. Dhar S, Mondal KK, Bhattacharjee P. Influence of lifestyle factors with the outcome of menstrual disorders among adolescents and young women in West Bengal, India. Sci Rep. 2023;13(1):12476.
28. Pogodina A, Dolgikh O, Astakhova T, Klimkina J, Khramova E, Rychkova L. Health-related quality of life and menstrual problems in adolescents. J Paediatr Child Health. 2022;58(6):1028-1032.
29. He Y, Tian J, Blizzard L, et al. Associations of childhood adiposity with menstrual irregularity and polycystic ovary syndrome in adulthood: the Childhood Determinants of Adult Health Study and the Bogalusa Heart Study. Hum Reprod. 2020;35(5):1185-1198.
30. Shaka MF, Wondimagegne YA. Anemia, a moderate public health concern among adolescents in South Ethiopia. PLoS One. 2018;13(7):e0191467.
31. De Sanctis V, Soliman AT, Elsedfy H, Soliman NA, Soliman R, El Kholy M. Dysmenorrhea in adolescents and young adults: a review in different country. Acta Biomed. 2016;87(3):233-246.
32. Dixon S, Hirst J, Taghinejadi N, Duddy C, Vincent K, Ziebland S. What is known about adolescent dysmenorrhoea in (and for) community health settings? Front Reprod Health. 2024;6:1394978.
33. Joshi M, Gumashta R. Weekly iron folate supplementation in adolescent girls--an effective nutritional measure for the management of iron deficiency anaemia. Glob J Health Sci. 2013;5(3):188-194.
34. Peña AS, Codner E, Witchel S. Criteria for Diagnosis of Polycystic Ovary Syndrome during Adolescence: Literature Review. Diagnostics (Basel). 2022;12(8):1931.

ISSN (O): 2687-5365; ISSN (P): 2753-6556