

# Menstrual Irregularities among Adolescence Girls: Incidence and Prevalence

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## Abstract

Adolescence is a transition period from childhood to adulthood. This complex passage from childhood to adulthood is particularly stressful for girls. The mean age at menarche varies from population to population and is known to be a sensitive indicator of various characteristics of population including nutritional status, geographical location, environmental conditions, and magnitude of socioeconomic inequalities in a society. Abnormal condition of the menstrual cycles is deviation from what is normal for an individual women. The condition may occur in the frequency or length of the cycle, volume, or length of menstrual flow or the total number of years of menstruation. The healthy adolescent population is considered as a social agent of change toward a population with a healthier life style. The period of adolescence for a girl is a period of physical and psychological preparation for safe motherhood. One of the major physiological changes that take place in adolescent girls is onset of menarche which is usually associated with a number of problems, among which dysmenorrhea is the most common. In adolescents, disorders of menstruation may present as abnormal uterine bleeding (AUB). Broadly understood, AUB includes absence of bleeding, irregular bleeding, abnormally heavy bleeding, and bleeding in between periods. The prevalence of these conditions is significant not only in developing countries but also in developed countries. Menstrual disorders in adolescence may present diagnostic and management challenges for the gynecologist. This review will describe the common and uncommon menstrual disorders that may arise in early reproductive life, together with guidance on their investigation and management.

**Keywords:** Adolescence, amenorrhea, dysmenorrhea, menarche, menopause

## INTRODUCTION

For young people, puberty is a period of immense physical and emotional shifts. Severe gynecological conditions in this age group are rare, but menstrual problems are not extraordinary. In this difficult period, teenagers and their families can undergo more disturbance.<sup>[1]</sup> The transition from infancy to adulthood is particularly stressful for girls.<sup>[2]</sup> Menstruation is daily discharge during the reproductive age from the vagina. Menorrhagia (menorrhagia) and/or painful (dysmenorrhea) can be irregular and periods of time.<sup>[3]</sup> Regular blood, secretions or the disintegrating uterus, or the womb consist of the regular

menstruation. While 28 days and normal time can be between 26 days and 30 days and can last for about 3–7 days, the interval of typical menstrual cycle is stated.

Menarche is the beginning of menstruation and is one of the main milestones in the life of a woman. The mean age at menarche varies by population and is considered to represent a sensitive indicator of different population characteristics, including diet, geographical place, environmental and social inequalities. In teenage girls, menstrual disorders are normal. Irregular, hard, and/or painful cycles, especially in the 1<sup>st</sup> few years after menarche are common. In adolescents, abnormal uterine bleeding, including bleeding, irregular bleeding, abnormally heavier bleeding, and bleeding, can occur as abnormal uterine bleeding in adolescents.

Amenorrhea or lack of menstruation can be either primary or secondary. Primary amenorrhea is characterized as either (a) the absence of menstrual function by the age of 15 years

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or (b) the absence of secondary sexual properties by the age of 13 years or (3 years from menarche) with normal puberal growth. Secondary amenorrhea is characterized as menses for 6 months, although it is not normal that menses for more than 3 months are missing in adolescents.

## DISORDERS OF PUBERTY ASSOCIATED WITH MENSTRUATION

### Primary amenorrhea

In accordance with the details available at <http://www.emedicine.com/med/topic117.htm>, the inability to menstruate at the age of 16 or 14 years in the absence of secondary sexual characteristics justifies the analysis. This distinction varies from the gonadal quiet and gonadal failure in reproductive tract abnormalities. Main amenorrhea can be due to congenital aberrations in ovarian development, genital tract or external genitalia, or to distortion of normal puberty endocrinology. In general, ~40% of the origin of primary amenorrhea is estimated to occur in endocrine disorders, with the remaining 60% developing anomalies.<sup>[4]</sup>

### Secondary amenorrhea

Secondary amenorrhea is the lack of menstruation that may be intermittent or permanent for more than 6 months, but 6 months are primarily an abstract term and the clinical background for amenorrhea. Furthermore, primary amenorrhea can be caused for any reason by secondary amenorrhea. In early reproductive life, polycystic ovary syndrome (PCOS) and pregnancy can both occur with secondary amenorrhea. The danger of bone demineralization, osteoporosis, and fractures is posed by a prolonged hypoestrogenic condition. Consequently, secondary estrogenic amenorrhea requires an estrogen supplement to maintain bone density.<sup>[1]</sup>

### Premature ovarian failure (POF)

POF is an enigmatic and heterogeneous condition characterized in women <40 years old with amenorrhea, hypoestrogenism, and hypergonadotropinism. Primary or secondary ovarian failure in teenagers may be primary or secondary. Karyotyping of Turner's disease (45X or 46XX/45X mosaic) or other chromosomal mosaics is indicated to be omitted. Hormonal thyroid stimulation, fasting glucose, and sugar antibodies, due to their connection with auto-immune diseases in those with the usual karyotype, should be tested and replicated every year (Hickey and Balen, 2003). Family idiopathic POF is also well-known and can be related to an inhibit gene mutation.<sup>[5]</sup>

The prevalent triggers in adolescents are distinct, and more of them are related to permanent ovarian abatement. Cytogenetic defects affecting the X-chromosome, ovary disorders along with other autoimmune endocrine disturbances, chemical treatment, and/or radiation therapy for some of the diseases appear to be the most common explanations for POF among teenagers. In addition to diagnosing the young woman and her family for special problems in young women, the potential for possible pregnancy is addressed.<sup>[6]</sup>

### Oligomenorrhea

Oligomenorrhea can be characterized as menses that occur less often than 35 days. PCOS is the most common cause of oligomenorrhea. There are also transient menstrual cycle regulation abnormalities, body weight (obesity or subweight), and hyperprolactinemias, and the emergence of causes of secondary amenorrhea.<sup>[1]</sup>

### PCOS in adolescence

In up to one third<sup>[7]</sup> of girls, PCOS appears to underlie abnormal steps. Usually, menarche is not delayed, but bleeding is sporadic. PCOS may have primary or secondary amniotics, acne, hirsutism, or just irregular cycles in adolescents. Ovarian dysfunction causes main signs of PCOS and the ovary has external factors that are themselves dependent on genetic as well as environmental influences, especially gonadotrophins and insulin.

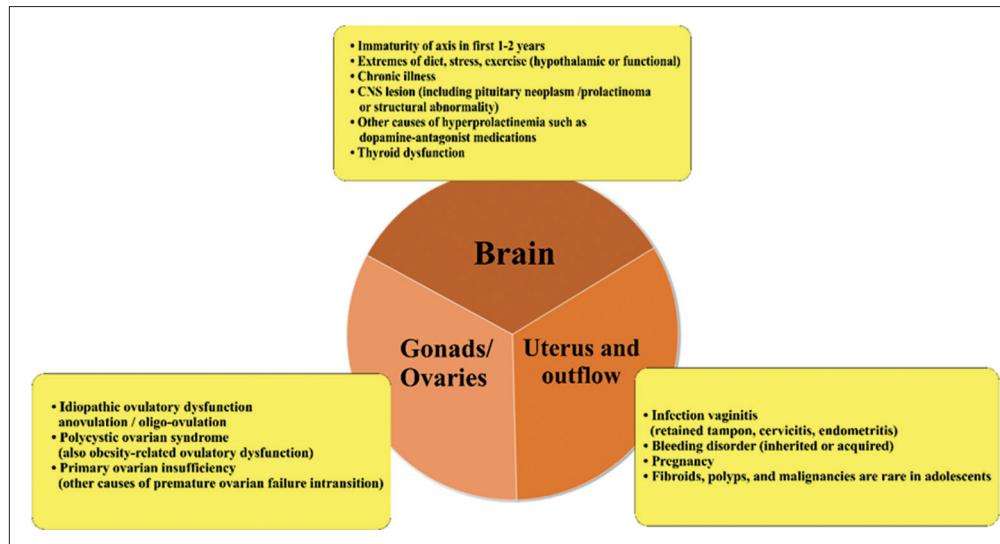
Roughly,  $20 \pm 33\%$  of women of reproductive age have polycystic ovaries in an ultrasound scan, while maybe  $75 \pm 80\%$  would have symptoms associated with a PCOS diagnose;<sup>[8,9]</sup> However, the long-term risks of obesity, subfertility, and diabetes and the potential risk of endometrial hyperplasia and carcinoma<sup>[10]</sup> and cardiovascular disorders<sup>[11]</sup> or breast cancer<sup>[12]</sup> are possibly the key issue for teenagers with PCOS.

Obesity also aggravates clinical PCOS manifestation and loss of weight can lead to improvement of the symptoms. In puberty, PCOS may first appear, but it is probably a great deal earlier than this. Increased weight gain during puberty is associated with PCOS.<sup>[13]</sup> PCOS genetic studies established associations with secretion and action of insulin, along with an increasing secretion of ovarian androgen. Association of insulin-depleted tandem repeat-local (VNTR) in the promotional region of the gene<sup>[14]</sup> has been reported with common allele variation. The risk of obesity, insulin resistance, and type 2 diabetes has been linked with this locus varied. The association described was class III/III, particularly among females with anovulatory and hyperinsulinaemic cycles [Figure 1].<sup>[14]</sup>

### Prevalence of menstrual irregularities among adolescent girls

Plethora of studies provides data in relation with the menstrual irregularities in adolescent girls. A study on the prevalence of extreme menstrual bleeding among teenage girls in the rural Haryana was found to be between 0.8%<sup>[15]</sup> and 23% in the urban West Bengal area.

Studies from different regions of India show that in urban West Bengal and urban Nagpur,<sup>[16]</sup> the prevalence of dysmenorrhea among adolescent girls was between 15% and 72.6%, respectively, and in developing countries, other than India indicate the prevalence of dysmenorrhea among adolescent girls, it was found to be between 25% in Enugu and Nigeria to 84.9% in Turkey.<sup>[17]</sup>



**Figure 1:** Causes of menstrual irregularities in adolescence. CNS: Central nervous system

**Table 1: Number of paper published on topic irregularities of menstruation in Google Scholar**

S. No.	Year	Number of paper published in Google Scholar
1	1995–2000	6630
2	2000–2005	12,200
3	2005–2010	16,600
4	2010–2015	17,700
5	2015–2020	17,500

The study results revealed that most adolescent girls had irregular menstruation (24%), 12.6% had polymenorrhea, 6.3% had bad menstruation, and only 4% of adolescent girls had menorrhagia. Dysmenorrhea during menstruation was experienced by the majority (79%). Abdominal pain (74%), backache (42.9%), and fainting (8.9%) were the menstrual symptoms experienced. The effects of neglecting menstrual symptoms in older women result in compromised reproductive and sexual health. Similar study was performed by Kulshrestha and Durrani<sup>[18]</sup> in different schools and cities of India and concluded the same issues as mentioned in the previous study.

A transversal study of a population-based group of Italian teens aged 13–21 years attended secondary school was conducted by Rigon *et al.*, 2012. The result of study showed that in sample population, 3.0% (95% CI 2.5–3.4%) of the girls had menstruation intervals of <21 days, while it was more than 35 days in 3.4% (95% CI 2.9–3.9%). About 9% of the girls (95% CI 7.7–9.4%) said the length of their menstruation interval was currently irregular. Short bleeding periods (<4 days) were reported in 3.2% of the sample population (95% CI 2.7–3.7%) and long periods (>6 days) in 19% (95% CI 17.9–20.1%). Menstruation-related abdominal pain was reported by about 56% of our sample. About 6.2% of the girls (95% CI 5.4–7.0%) were suffering from dysmenorrhea [Table 1].<sup>[19]</sup>

## CONCLUSION

After reviewing the literature, it shows that in adolescent girls both worldwide and in India, the incidence of menstrual irregularities is far higher. Dysmenorrhea and premenstrual syndrome are the most common menstrual irregularities. The above reviews show the prevalence of menstrual irregularities and also established that education programs help boost awareness of menstrual irregularities among teenagers.

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