

# Prevalence and Clinical–Socio-Demographic Characteristics of Emerging Polycystic Ovary Syndrome in Adolescent and Young Female Populations

Kurbanova Z. Sh.<sup>1</sup>, Ikhtiyarova G. A.<sup>2,\*</sup>

<sup>1</sup>DSc., Professor, Bukhara State Medical Institute, Bukhara, Uzbekistan

<sup>2</sup>PhD Student, Bukhara State Medical Institute, Bukhara, Uzbekistan

**Abstract** This clinical observational study assessed the clinical, socio-demographic, and lifestyle characteristics of adolescents and young women with emerging polycystic ovary syndrome (ePCOS). A total of 150 participants aged 16–25 years were examined and stratified into two clinical groups with ePCOS and a control group of healthy individuals. The assessment included age distribution, anthropometric parameters, menstrual cycle characteristics, lifestyle-related risk factors, and socio-clinical indicators. The results demonstrated a high prevalence of menstrual irregularities, including oligomenorrhea and cycle instability, among girls with ePCOS compared to controls. Participants in the primary group were characterized by increased body mass index, a high frequency of abdominal obesity, and a predominance of sedentary lifestyle, irregular sleep patterns, frequent fast-food consumption, and chronic stress exposure. In addition, a significant association was observed between hereditary predisposition to obesity and the severity of clinical manifestations of ePCOS. Phenotypic analysis revealed a predominance of hyperandrogenic and metabolic phenotypes among affected individuals. These findings indicate that emerging polycystic ovary syndrome in adolescents and young women is closely associated with adverse socio-clinical and lifestyle factors, emphasizing the importance of early identification and preventive interventions aimed at modifying risk factors at a young age.

**Keywords** Emerging polycystic ovary syndrome, Adolescents, Young women, Socio-demographic characteristics, Lifestyle factors, Menstrual disorders, Obesity, Phenotypes

## 1. Introduction

Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders affecting women of reproductive age, with a global prevalence ranging from 6% to 15% depending on diagnostic criteria [1]. In recent years, increasing attention has been directed toward the early and “emerging” forms of PCOS in adolescents and young women, as clinical and metabolic disturbances often begin several years before the establishment of classical diagnostic features [2]. According to epidemiological data, menstrual irregularities, hyperandrogenic manifestations, and metabolic risk factors are frequently detected during adolescence, suggesting that PCOS is a progressive condition with early-life origins [3].

Large population-based studies indicate that lifestyle-related factors, including sedentary behavior, irregular sleep patterns, unhealthy dietary habits, and chronic psychosocial

stress, significantly contribute to the development and progression of PCOS, particularly in young populations [4,5]. Obesity, especially abdominal obesity, is reported in up to 60–70% of patients with PCOS and is closely associated with the severity of clinical manifestations and metabolic disturbances [6]. Moreover, hereditary predisposition to obesity and metabolic disorders further increases the risk of early onset and unfavorable course of PCOS [7].

Despite growing evidence of the clinical and socio-demographic determinants of PCOS, data focusing specifically on adolescents and young women remain limited, particularly in terms of structured assessment of lifestyle factors and phenotypic variability [8]. Early identification of socio-clinical risk profiles is essential, as untreated emerging PCOS is associated with long-term reproductive, metabolic, and cardiovascular complications, including infertility, type 2 diabetes mellitus, and dyslipidemia [9,10]. Therefore, comprehensive evaluation of clinical, socio-demographic, and lifestyle characteristics in young females with emerging PCOS is highly relevant and represents an important step toward the development of effective preventive and early intervention strategies.

\* Corresponding author:

gulchexra\_ixtiyarova@bsmi.uz (Ikhtiyarova G. A.)

Received: Dec. 12, 2025; Accepted: Jan. 8, 2026; Published: Jan. 20, 2026

Published online at <http://journal.sapub.org/ajmms>

**Purpose of the study.** was to investigate the clinical, socio-demographic, and lifestyle characteristics of adolescents and young women with emerging polycystic ovary syndrome.

## 2. Materials and Methods

A clinical observational study was conducted involving 150 adolescents and young women aged 16–25 years. All participants underwent a comprehensive clinical and socio-demographic assessment and were enrolled in the study according to predefined inclusion and exclusion criteria to ensure the homogeneity of groups and minimize the influence of confounding conditions.

The study population was stratified into three groups:

Group I – girls with emerging polycystic ovary syndrome characterized by pronounced metabolic and clinical manifestations;

Group II – girls with emerging polycystic ovary syndrome without marked metabolic disturbances;

Control group – apparently healthy girls without clinical or laboratory signs of polycystic ovary syndrome.

Age characteristics and population distribution of the examined participants are presented in Table 1.

**Table 1.** Age characteristics and population distribution of the examined girls (n = 150)

Indicator	Group I	Group II	Control
Mean age, years (M±m)	20.8 ±0.3	20.5 ±0.3	20.2 ±0.4
Age range, years	16–25	16–25	16–25
Proportion of girls aged 16–19 years, %	43%	41%	49%
Proportion of girls aged 20–25 years, %	57%	59%	51%

The mean age of participants was comparable across all groups and amounted to 20.8 ±0.3 years in Group I, 20.5 ±0.3 years in Group II, and 20.2 ±0.4 years in the control group. The age range in all groups varied from 16 to 25 years. Analysis of age subgroups showed that girls aged 16–19 years accounted for 43% in Group I, 41% in Group II, and 49% in the control group, whereas participants aged 20–25 years predominated in Group I (57%) and Group II (59%) compared to the control group (51%).

The clinical assessment included evaluation of menstrual cycle characteristics, body mass index, and anthropometric parameters. Socio-demographic and lifestyle-related factors such as physical activity level, sleep regularity, dietary habits, presence of chronic stress, and hereditary predisposition to obesity were analyzed using structured questionnaires. Special attention was paid to identifying intergroup differences in clinical and socio-demographic indicators in order to assess their potential role in the development and progression of emerging polycystic ovary syndrome.

## 3. Results and Discussion

Analysis of medico-social risk factors revealed a significantly higher prevalence of adverse lifestyle and hereditary factors among girls with emerging polycystic ovary syndrome compared to the control group (Table 2).

**Table 2.** Medico-Social Risk Factors among the Examined Girls

Risk factor	Group I (%)	Group II (%)	Control (%)
Sedentary lifestyle	61	48	22
Irregular sleep pattern	52	39	18
Frequent fast-food consumption	44	32	15
Chronic stress	37	29	12
Hereditary predisposition to obesity	51	28	13

A sedentary lifestyle was reported in 61% of participants in Group I and 48% in Group II, whereas it was observed only in 22% of the control group. Irregular sleep patterns were also more common among girls with ePCOS, affecting 52% of Group I and 39% of Group II, compared to 18% in the control group.

Frequent consumption of fast food was noted in 44% of girls in Group I and 32% in Group II, which substantially exceeded the corresponding value in the control group (15%). Chronic psychosocial stress was identified in more than one-third of participants in Group I (37%) and in 29% of Group II, while its prevalence among healthy controls remained low (12%). In addition, a hereditary predisposition to obesity was markedly more frequent in Group I (51%) than in Group II (28%) and the control group (13%). Overall, the obtained data indicate a clear accumulation of medico-social risk factors among girls with emerging polycystic ovary syndrome, particularly in those with more pronounced clinical and metabolic manifestations.

The analysis of menstrual cycle disorders demonstrated a markedly higher prevalence of menstrual dysfunction among girls with emerging polycystic ovary syndrome compared to the control group (Table 3).

**Table 3.** Menstrual Cycle Disorders in Girls with Emerging Polycystic Ovary Syndrome

Type of disorder	Group I	Group II	Control
Oligomenorrhea	63%	58%	7%
Amenorrhea	14%	9%	0%
Unstable menstrual cycle	92%	87%	11%
Primary dysmenorrhea	38%	29%	16%

Oligomenorrhea was observed in 63% of participants in Group I and in 58% of Group II, whereas it was detected only in 7% of healthy controls. Amenorrhea was identified exclusively among girls with ePCOS, affecting 14% of Group I and 9% of Group II, while no cases were recorded in the control group.

Cycle instability was the most common menstrual

abnormality, present in 92% of girls in Group I and 87% in Group II, compared to only 11% in the control group. Primary dysmenorrhea was also more frequent among girls with ePCOS, occurring in 38% of Group I and 29% of Group II, whereas its prevalence in the control group did not exceed 16%. Overall, the findings indicate that menstrual cycle disturbances represent a key clinical manifestation of emerging polycystic ovary syndrome, with a higher frequency and severity observed in girls with more pronounced clinical features.

Assessment of body mass index and obesity-related parameters revealed pronounced intergroup differences (Table 4).

**Table 4.** Body Mass Index and Obesity Parameters in the Examined Girls

Indicator	Group I	Group II	Control
Body mass index, kg/m <sup>2</sup> (M±m)	31.2 ±0.4	22.1 ±0.3	20.3 ±0.3
Waist circumference, cm (M±m)	89.4 ±1.2	71.5 ±1.1	66.2 ±0.9
Abdominal obesity, %	72%	19%	0%

Girls in Group I demonstrated a significantly higher body mass index, with a mean BMI of 31.2 ± 0.4 kg/m<sup>2</sup> corresponding to obesity, whereas participants in Group II had a mean BMI of 22.1 ± 0.3 kg/m<sup>2</sup> which was within the normal range. The lowest BMI values were observed in the control group (20.3 ± 0.3 kg/m<sup>2</sup>).

Waist circumference, reflecting central fat distribution, was markedly increased in Group I (89.4 ± 1.2 cm) compared to Group II (71.5 ± 1.1 cm) and the control group (66.2 ± 0.9 cm). Abdominal obesity was detected in 72% of girls in Group I, indicating a high prevalence of central adiposity, whereas it was present in only 19% of Group II participants and was not observed in the control group. These findings highlight the strong association between emerging polycystic ovary syndrome and obesity-related anthropometric alterations, particularly among girls with more severe clinical and metabolic features.

Analysis of phenotypic distribution demonstrated substantial differences between the examined groups of girls with emerging polycystic ovary syndrome (Table 5).

**Table 5.** Distribution of Emerging Polycystic Ovary Syndrome Phenotypes among the Examined Girls

Phenotype	Group I (%)	Group II (%)
Hyperandrogenic	68	54
Metabolic	72	31
Ovarian	48	66
Mixed	38	21

In Group I, the hyperandrogenic phenotype was identified in 68% of participants, while in Group II it was observed in 54% of cases. The metabolic phenotype predominated in Group I, being detected in 72% of girls, whereas its prevalence in Group II was considerably lower (31%).

In contrast, the ovarian phenotype was more frequently observed in Group II, affecting 66% of participants, compared to 48% in Group I. The mixed phenotype, characterized by a combination of hormonal and metabolic disturbances, was identified in 38% of girls in Group I and in 21% of Group II. Overall, the findings indicate a heterogeneous phenotypic structure of emerging polycystic ovary syndrome, with a predominance of metabolically unfavorable and hyperandrogenic phenotypes among girls with more pronounced clinical manifestations.

## 4. Conclusions

Emerging polycystic ovary syndrome in adolescents and young women is characterized by a high prevalence of adverse socio-clinical and lifestyle-related factors, including sedentary behavior, irregular sleep patterns, unhealthy dietary habits, chronic stress, and hereditary predisposition to obesity.

Girls with emerging polycystic ovary syndrome demonstrate a significantly higher frequency of menstrual cycle disorders and obesity-related anthropometric alterations, particularly abdominal obesity, indicating early metabolic involvement in the disease process.

Phenotypic analysis reveals pronounced heterogeneity of emerging polycystic ovary syndrome, with a predominance of hyperandrogenic and metabolically unfavorable phenotypes in girls with more severe clinical manifestations, emphasizing the importance of early identification and individualized preventive strategies.

## REFERENCES

- [1] Azziz, R., Carmina, E., Chen, Z., Dunaif, A., Laven, J. S. E., Legro, R. S., & Yildiz, B. O. (2016). Polycystic ovary syndrome. *Nature Reviews Disease Primers*, 2, 16057.
- [2] Ibáñez, L., Oberfield, S. E., Witchel, S., Auchus, R. J., Chang, R. J., Codner, E., ... Lee, M. M. (2017). An International Consortium Update: Pathophysiology, diagnosis, and treatment of polycystic ovarian syndrome in adolescence. *Hormone Research in Paediatrics*, 88(6), 371–395.
- [3] Peñã, A. S., Witchel, S. F., Hoeger, K. M., Oberfield, S. E., Vogiatzi, M. G., Misso, M., ... Teede, H. J. (2020). Adolescent polycystic ovary syndrome according to the international evidence-based guideline. *BMC Medicine*, 18, 72.
- [4] Teede, H. J., Misso, M. L., Costello, M. F., Dokras, A., Laven, J., Moran, L., ... Norman, R. J. (2018). Recommendations from the international evidence-based guideline for the assessment and management of polycystic ovary syndrome. *Human Reproduction*, 33(9), 1602–1618.
- [5] Lim, S. S., Davies, M. J., Norman, R. J., & Moran, L. J. (2012). Overweight, obesity and central obesity in women with polycystic ovary syndrome. *Human Reproduction Update*, 18(6), 618–637.

- [6] Barber, T. M., & Franks, S. (2021). Obesity and polycystic ovary syndrome. *Clinical Endocrinology*, 95(4), 531–541.
- [7] Glinborg, D., & Andersen, M. (2017). Medical comorbidity in polycystic ovary syndrome. *Fertility and Sterility*, 106(4), 784–794.
- [8] Rosenfield, R. L. (2020). The diagnosis of polycystic ovary syndrome in adolescents. *Pediatrics*, 146(6), e20201206.
- [9] Kakoly, N. S., Khomami, M. B., Joham, A. E., Cooray, S. D., Misso, M. L., Norman, R. J., ... Teede, H. J. (2018). Ethnicity, obesity and the prevalence of polycystic ovary syndrome. *Clinical Endocrinology*, 89(4), 440–448.
- [10] Moran, L. J., Norman, R. J., & Teede, H. J. (2015). Metabolic risk in PCOS: Phenotype and adiposity impact. *Trends in Endocrinology & Metabolism*, 26(3), 136–143.