

## To Assess the Level of Awareness of Polycystic Ovarian Syndrome in Adolescents: Cross-Sectional Survey

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### Abstract

**Aim:** To assess the level of awareness of polycystic ovarian syndrome in adolescents using a cross-sectional survey.

**Material and Methods:** This study was conducted in the Department of Obstetrics and Gynaecology, Patna Medical College and Hospital, Patna, Bihar, India. The survey was conducted on 200 medical students of 1st, 2nd and 3rd year of different colleges by using simple random sampling technique. The data was collected by using structured knowledge questionnaire on PCOS. The investigator obtained permission from the students, prior to the data collection and assured confidentiality to the subject to get their cooperation and explained the purpose of the study.

**Results:** In present study, 33% adolescent and young girls had information about PCOS from teacher, 19% got information from friend, 11.5% got information from a doctor, 3.5% got information from newspaper while 5% got information from internet. 28% adolescent and young girls were unaware of PCOS. Being medical students, main source of information was teacher. Still 28% of girls were unaware about PCOS when they are in first or second year. So, 72% girls were aware of PCOS while 28% were unaware of PCOS. In this study, 9.5% girls consulted dermatologist for either hirsutism or acne, 4.5% consulted gynaecologist for irregularity of menses, 1% girls sought ayurvedic treatment while 1% opted for homeopathy. Amongst 16% girls who consulted a doctor, 9% girls did ultrasonography and blood investigations. Amongst them, 6% girls were diagnosed as having PCOS. So, prevalence of PCOS in present study is 6%.

**Conclusion:** It is concluded that 72% of girls were aware of PCOS while 28% of girls were unaware of PCOS. Prevalence of PCOS in present study is 6%. Most common source of information about PCOS was teacher as the girls were medical students. Girls who were having BMI more than 23 should be educated about its hazards and should be advised weight loss. Girls who had irregularity of menses and signs of hyperandrogenism should be investigated and must be managed accordingly.

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### Introduction

Polycystic ovarian syndrome (PCOS) is one of the most prevalent endocrine disorders affecting women of reproductive age, with its onset often occurring during adolescence. Characterized by irregular menstrual cycles, hyperandrogenism, and polycystic ovarian morphology, PCOS can significantly impact the physical, emotional, and social well-being of affected individuals. Despite its high prevalence, awareness and understanding of PCOS among adolescents remain relatively low, leading to delays in diagnosis and management. This lack of awareness can exacerbate the long-term health

implications associated with PCOS, such as metabolic syndrome, type 2 diabetes, cardiovascular disease, and infertility. [1] Adolescence is a critical period for the onset of PCOS symptoms, which can often be mistaken for normal pubertal changes. The variability in clinical presentation, including symptoms like acne, hirsutism, and weight gain, contributes to the diagnostic challenges. Early recognition and intervention are crucial in mitigating the adverse effects of PCOS, emphasizing the importance of increasing awareness among

adolescents, their parents, and healthcare providers. [2]

Educational initiatives targeting adolescents can play a vital role in enhancing awareness and promoting early detection of PCOS. School-based health education programs, online resources, and community outreach efforts are effective strategies for disseminating information about PCOS. These initiatives can empower young women with knowledge about the symptoms, risk factors, and potential health consequences of PCOS, encouraging them to seek medical advice and engage in proactive health behaviors. [3] Healthcare providers also have a pivotal role in raising awareness and improving the management of PCOS in adolescents. Routine screening for PCOS symptoms during adolescent health check-ups, coupled with educational counseling, can facilitate early diagnosis and intervention. Collaborative efforts between endocrinologists, Gynecologists, dermatologists, and nutritionists can ensure a comprehensive approach to managing PCOS, addressing both the physical and psychosocial aspects of the condition. [4]

In recent years, there has been a growing recognition of the need for increased awareness and education about PCOS in adolescents. Research indicates that targeted educational programs can significantly improve knowledge and self-management skills among young women with PCOS. For instance, studies have demonstrated that adolescents who receive education about PCOS are more likely to adhere to treatment plans, engage in healthy lifestyle practices, and report improved quality of life. [5-8] Despite these positive developments, there is still a substantial gap in awareness and understanding of PCOS among adolescents, particularly in underserved and marginalized communities. Socioeconomic factors, cultural beliefs, and limited access to healthcare services can hinder efforts to raise awareness and provide timely care for adolescents with PCOS. Addressing these disparities requires a multi-faceted approach, including policy initiatives, community engagement, and the integration of PCOS education into broader public health strategies. [9,10]

### Material and Methods

This study was conducted in the Department of Obstetrics and Gynaecology, Patna Medical College and Hospital, Patna, Bihar, India for 12 months. The survey was conducted on 200 medical students of 1st, 2nd and 3rd year of different colleges by using simple random sampling technique. The data was

collected by using structured knowledge questionnaire on PCOS. The investigator obtained permission from the students, prior to the data collection and assured confidentiality to the subject to get their cooperation and explained the purpose of the study. The results were analyzed. Data collection was as follows: Age, Weight in kg and height in cm to calculate BMI, Type of diet- Vegetarian or mixed diet, Irregularity of menses, Signs of hyperandrogenism-Hirsutism or acne, Source of information-Teacher, doctor, friend, paper or internet, Type of consultation-Dermatologist or gynaecologist or any other, No. of diagnosed cases

### Results

In present study, 62.5% girls were young girls in the age group of 20-24 years while 37.5% girls were adolescent girls in the group of 18-19 years. Adolescent girls were from 1st or 2nd year. Young girls were from 2<sup>nd</sup> or 3<sup>rd</sup> year. A few were from 4th year when they learn PCOS in syllabus. In present study, 51% girls had normal BMI, 19.5% were overweight, 16.5% were obese while 13% were underweight. Overweight and obese girls are more prone for PCOS. Counselling was given and weight reduction was advised. Also, hormonal profile for thyroid, hyperandrogenism was suggested. In present study, 51% girls were consuming pure vegetarian diet while 49% girls were consuming mixed (vegetarian and non-vegetarian) food. Advice regarding healthy food was given. In present study, 33.5% girls had acne, 16% had irregularity of menses, 5% had hirsutism. Hormonal profile for hyperandrogenism was suggested.eg. Serum Testosterone, Serum DHEAS. If these levels were high, the girls were referred to endocrinologist for further management. In present study, 33% adolescent and young girls had information about PCOS from teacher, 19% got information from friend, 11.5% got information from a doctor, 3.5% got information from newspaper while 5% got information from internet. 28% adolescent and young girls were unaware of PCOS. Being medical students, main source of information was teacher. Still 28% of girls were unaware about PCOS when they are in first or second year. So, 72% girls were aware of PCOS while 28% were unaware of PCOS. In this study, 9.5% girls consulted dermatologist for either hirsutism or acne, 4.5% consulted gynaecologist for irregularity of menses, 1% girls sought ayurvedic treatment while 1% opted for homeopathy. Amongst 16% girls who consulted a doctor, 9% girls did ultrasonography and blood investigations. Amongst them, 6% girls were diagnosed as having PCOS. So, prevalence of PCOS in present study is 6%.

**Table 1: Age group.**

Age group	No. of patients	Percent
18-19 years	75	37.5
20-24 years	125	62.5

**Table 2: BMI (Body mass index).**

BMI	No. of patients	Percent
<17.9 kg/m <sup>2</sup> underweight	26	13
18-22.9 kg/m <sup>2</sup> normal	102	51
>23 kg/m <sup>2</sup> overweigh	39	19.5
>25 kg/m <sup>2</sup> obese	33	16.5

**Table 3: Type of diet.**

Type of diet	No. of girls	Percent
Mixed (veg and non-veg)	98	49
Vegetarian	102	51

**Table 4: Problems in adolescent and young girls.**

Problems	No. of patients	Percent
Irregularity of menses	32	16
Hirsutism	10	5
Acne	67	33.5

**Table 5: Source of information about PCOS.**

Source of information about PCOS	No. of patients	Percent
Teacher	66	33
Friend	38	19
Doctor	23	11.5
Paper	7	3.5
Internet	10	5
No information	56	28

**Table 6: Type of doctor attended.**

Type of doctor attended	No. of girls	Percent
Dermatologist	19	9.5
Gynaecologist	9	4.5
Ayurvedic	2	1
Homeopathic	2	1

**Table 7: Prevalence of PCOS.**

	No. of girls	Percent
Consultation with doctor	32	16
Investigations done	18	9
Proved PCOS	12	6

## Discussion

The present study was conducted on 200 medical students by using simple random sampling technique. In current study, 62.5% girls were young girls in the age group of 20-24 years while 37.5% girls were adolescent girls in the group of 15-19 years. Sunanda B et al revealed that 85% of the samples were in the age group of 21-25 years, 75% of the samples were Christians, 82% of the samples were consuming mixed diet, and 92% samples had regular menstrual cycle.<sup>1</sup> Sills S et al found that from

657 participants, the majority (63%) were between 26-34 years.<sup>2</sup> Moghul S found that the increasing trend of PCOS is predominantly seen in the age group 15 to 30 years. [8] In present study, 51% girls had normal BMI, 19.5% were overweight, 16.5% were obese while 13% were underweight. Sanchez N et al found that 32% were obese.<sup>4</sup> In present study, 51% girls were consuming pure vegetarian diet while 49% girls were consuming mixed (vegetarian and non-vegetarian) food. In present study, 33.5% females had acne, 16% had irregularity of

menses, 5% had hirsutism. Sanchez N et al found that 32% were obese, 21% had acne, and 7% were hirsute (all associated with elevated testosterone levels and PCO appearance on ultrasound.<sup>4</sup> Joshi et al found that history of oligomenorrhea had a positive predictive value of 93.3% and negative predictive value of 86.7% to detect a possible case of PCOS. [6] In present study, 33% adolescent and young girls had information about PCOS from teacher, 19% got information from friend, 11.5% got information from a doctor, 3.5% got information from newspaper while 5% got information from internet. 28% adolescent and young girls were unaware of PCOS. 72% girls were aware of PCOS while 28% were unaware of PCOS. Sunanda B et al found that 76% of the samples were with average knowledge and 10.7% with good knowledge regarding polycystic ovarian syndrome.<sup>1</sup> Sills ES et al found that more than 97% (n=638) of the respondents were familiar with PCOS, while 1.9% had not been told about PCOS, and <1% were uncertain.<sup>2</sup> Sills ES et al found that those subjects between age 26-34 were significantly more aware of PCOS than any other age group.<sup>2</sup> Gul S et al found that only 20 out of 177 women had any knowledge about this syndrome. Out of these 20 women 11 were those who had degrees in Medical Sciences. [6] Gul S. et al found that 10% of women knew about this disorder.<sup>5</sup> In this study, 9.5% girls consulted dermatologist for either hirsutism or acne, 4.5% consulted gynaecologist for irregularity of menses, 1% girls sought ayurvedic treatment while 1% opted for homeopathy. Sills ES et al found that Physicians were the most common provider of PCOS information for all study participants, irrespective of age.<sup>2</sup> In current study amongst 16% girls who consulted a doctor, 9% girls did ultrasonography and blood investigations. Amongst them, 6% girls were diagnosed as having PCOS. So, prevalence of PCOS in present study is 6%. Sanchez N et al found that the prevalence of PCOS in adult women aged 18-45 years in the US is estimated to be 6.6%.<sup>4</sup> Joshi B et al found that globally, prevalence estimates of PCOS are highly variable, ranging from 2.2% to as high as 26%.<sup>6</sup> Joshi B et al found that the prevalence of PCOS was 22.5% by Rotterdam and 10.7% by Androgen Excess Society criteria.<sup>6</sup> Joshi B et al demonstrated that PCOS is an emerging disorder during adolescence and screening could provide opportunity to target the group for promoting healthy lifestyles and early interventions to prevent future morbidities. [6] Shetty D found that around 10% of Indian women are affected with Polycystic Ovary Syndrome, commonly known as PCOS. [9] Choudhary N et al found that prevalence of PCOS in Indian adolescents is 9.13%. [10] Vaidya R et al found that according to World Health Organization, there are PCOS affected 116 million women worldwide in 2012 (3.4% of women). [11] Lakshmi KS et al found that the prevalence of PCOS at a

tertiary care hospital was 32%. [12] Radha P et al found that the rates of polycystic ovarian syndrome are high among Indian women compared to their Caucasian counterparts, with an estimated prevalence of 9.13% in Indian adolescents. [13] Radha P et al found that 20% of participants were diagnosed with PCOS. The proportion of PCOS was higher in urban population in comparison to rural counter parts. [13]

### Conclusion

From this study, it is concluded that 72% of girls were aware of PCOS while 28% of girls were unaware of PCOS. Prevalence of PCOS in present study is 6%. Most common source of information about PCOS was teacher as the girls were medical students. Girls who were having BMI more than 23 should be educated about its hazards and should be advised weight loss. Girls who had irregularity of menses and signs of hyperandrogenism should be investigated and must be managed accordingly. Early diagnosis of PCOS and its prompt treatment will help the girls to improve quality of life and prevent further health hazards.

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