



**ORIGINAL RESEARCH PAPER**

**Health Science**

**MULTICENTRIC CROSS-SECTIONAL SURVEY TO ASSESS THE PREVALENCE OF POLYCYSTIC OVARIAN SYNDROME IN COLLEGE GOING FEMALES OF AGE GROUP 18-30 YEARS**

**KEY WORDS:** Polycystic ovarian syndrome(PCOS), hyperandrogenism, prevalence, Obesity, Insulin Resistance

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**ABSTRACT** Polycystic Ovarian Syndrome is most common endocrine disorder found in women of reproductive age which is characterized by hyperandrogenism and chronic anovulation. The etiology of the disease remains unclear but nearly 6 to 20 % of women remain effected with it. PCOS is characterized by irregular menstrual cycle, polycystic ovaries, hirsutism, insulin resistance, dyslipidemia and infertility. There are different diagnostic criteria used to assess PCOS but Rotterdam criteria are worldwide accepted for adult women. Owing to the complicated pathophysiology, recognizing the inciting causes is difficult and hence large percentage of females remain undiagnosed even after visiting multiple health care centers. This review will seek to determine the prevalence of polycystic ovarian syndrome in medical colleges.

**INTRODUCTION**

In young women, polycystic ovarian syndrome (PCOS) is a serious endocrine condition that impairs both mental and physical health-related quality of life.<sup>1</sup> Additionally, this develops into a chronic health disease that lasts a lifetime and affects about 5 million people in their early years in developed countries like United States of America. PCOS is thought to affect adolescents differently depending on race in India, with an estimated frequency of 9.13%.<sup>2</sup> Menstrual irregularity, obesity, and significant physical changes like acne, excessive hair growth on face and body has all been identified as the primary causes of psychological distress.<sup>3</sup> The detrimental effects of PCOS on women's lives are consistently underappreciated and can increase their risk for severe anxiety and psychological disorders. Importantly, as societal beliefs and physical locations change, so do psychological burdens. These patients may find that the PCOS characteristics are stressful and may be more susceptible to depression and anxiety disorders, which itself may increase their risk for suicide ideation.<sup>4</sup>

In terms of its clinical manifestations, PCOS is distinguished by either oligo-ovulation or anovulation, hyperandrogenism that may result in infertility, and various associated metabolic problems. As a result, there is an elevated risk of mental and reproductive problems, including infertility, endometrial cancer, and gestational diabetes.<sup>1,5</sup>

There is still a dearth of knowledge on PCOS among Indian women in the reproductive age group, particularly in North India. This study was therefore designed to compare socioeconomic status (SDS) and associations of age, body mass index (BMI), education level, and marital status between PCOS and healthy control cases among the reproductive-age women studying in Bakson homoeopathic medical college and IIMT.

**Aims and Objective**

The main objective of the study was to assess the prevalence of this syndrome, to study the spectrum of its clinical presentation and awareness of polycystic ovarian syndrome among adolescence between the age of 18–30 years .

**Purpose Of Selection Of Topic**

The prevalence of Polycystic ovarian syndrome is increasing day by day because adolescents are thoroughly not aware of this problem. Sedentary life style, indoor activities, lack of exercise, stress, junk food is the most common factors that is cause of this problem. Although having a family history also contributes to PCOS. But we have the power to switch off our bad genes and swtitch on our good genes. This branch of science is called epigenetic. Thus we can control this syndrome by spreading awareness among masses and its effective treatment in Homoeopathy.

**MATERIALS AND METHOD**

**Study Setting:** The online survey (google form) was conducted on female students in different colleges (Bakson homoeopathic medical college, IIMT group of institute of pharmacy, Galgotia college of pharmacy, Greater Noida U.P. and MPK homoeopathic medical college, Hospital & Research centre, Jaipur Rajasthan)

**Total Number Of Screened Students:** 442 female students were screened through google form questionnaire.

**Study Design:** cross- sectional study.

**Study Duration:** April 2022 to April 2023 (one year)

**Inclusion Criteria**

Female students, aged 18 years to 30 years

**Exclusion Criteria**

Students who have filled the form incompletely were excluded.

**Selection of Tools:** A self- administered online questionnaire was used as a study tool on Google form.

This type of survey was easy to administer and could include many participants.

**Data Collection:** All data was collected through google form responses.

**Methodology**

Since April 2022 to April 2023 conducted PCOS presentation in different colleges (BHMC, IIMT Group of Institute of

pharmacy, Galgotia college of pharmacy, Greater Noida, U.P, MPK homoeopathic medical college Jaipur, Rajasthan. The following steps are followed shown in flow chart.

- Smart play related to PCOS played by students.
- Pcos presentation by Pcos team members.
- Constructed PCOS questionnaire by PCOS team (questions were related to PCOS).
- Google form questionnaire written in English language only (in MCQs form & short answer).
- Questions covered age, marital status, menstrual irregularities, Skin darkening, acne, weight gain, hair loss etc.
- After PCOS presentation google form link shared to students through social media platform (whatsApp).
- Responses recorded and analysed from calculation of prevalence of PCOS in female students.



PCOS Team At IIMT Group Of Institutes



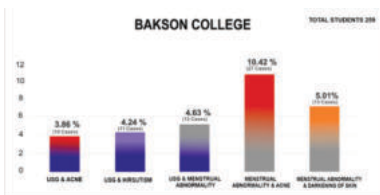
PCOS Team At Galgotias College



PCOS Team Along With DR. S.P.S. Bakshi (CMD-Bakson), DR. C.P.Sharma (PRINCIPAL), MRS. Seema Bakshi

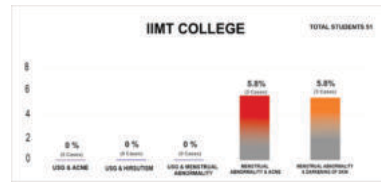
**RESULT**

Total 442 female students participated in the survey for polycystic ovarian disease.

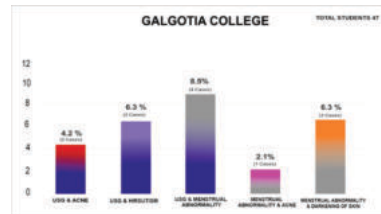


Out of 259 students screened in Bakson Homoeopathic medical college and Hospital, only 28.18 % (73 students) showed positive findings under Rotterdam criteria for PCOS.

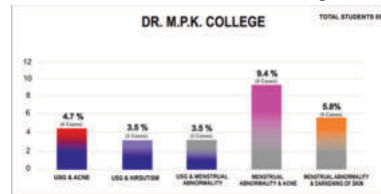
Out of these 28.18 % cases, positive USG & complaints of Acne are found in 3.86 % (10 cases), Polycystic ovaries and hirsutism found in 4.24 % (11 cases), positive USG and menstrual abnormalities in 4.63 % (12 cases), menstrual abnormalities and acne in 10.42 % (27 cases) and menstrual abnormalities and darkening of skin is found in 5.01% (13 cases).



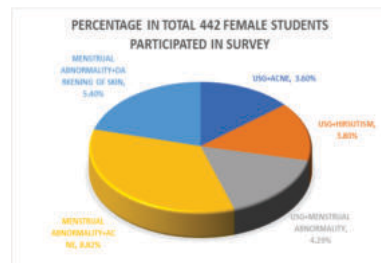
In IIMT college, out of 51 students, only 11.7 % (6 subjects) reported positive findings under Rotterdam Criteria for diagnosis of PCOS. Out of this total 11.7 % cases, 5.8%(3 students) , complained of menstrual abnormalities and acne and 5.8% (3 Students) menstrual abnormalities and darkening of skin.



In Galgotia College, total 47 peoples were screened by google forms, out of which 27.6 % (13 cases) were found with positive findings under Rotterdam criteria for diagnosis of PCOS. Out of these 13 Subjects, 4.2% (2 cases) reported of positive USG and Acne, 6.3 % (3 cases) positive USG and Hirsutism, 8.5% (4 cases) Polycystic ovaries on USG and menstrual abnormalities, 2.1% (1 case) of menstrual abnormalities and acne and 6.3 % (3 cases) conveyed of menstrual abnormalities and Acanthosis Nigricans.



In Dr. M.P.K. College, out of total 85 scholars screened, 26.9 % (23 cases) showed positive findings under the Rotterdam criteria for diagnosis of PCOS. Out of these 23 cases, 4.7 % (4 cases) reported of Polycystic ovaries on USG with Acne, 3.5 % (3 cases) complained of positive USG findings with Hirsutism, 3.5 % (3 cases) USG with menstrual abnormalities, 9.4 % (8 cases) found with menstrual abnormalities with acne and 5.8 % (5 cases) found menstrual abnormalities with darkening of skin.



Out of total 442 subjects screened, 3.6 % (16 cases) showed positive findings under the Rotterdam criteria for Polycystic ovaries on USG with Acne, 3.80 % (17 cases) had positive USG findings with Hirsutism, 4.29 % (19 cases) USG with menstrual abnormalities, 8.82 % (39 cases) found with menstrual abnormalities with acne and 5.4 % (24 cases) found menstrual abnormalities with darkening of skin.

**DISCUSSION**

Experts have identified 4 phenotypes or variants in Rotterdam criteria of diagnosing PCOS which are given below:

- Classic PCOS or Phenotype A (HA+OA+USG): presence of clinical hyperandrogenism/ hyperandrogenemia, oligomenorrhea/anovulation, and polycystic ovaries
- Essential NIH criteria or Phenotype B (HA+OA): presence of Clinical hyperandrogenism or hyperandrogenemia and oligomenorrhea/anovulation
- Ovulatory PCOS or Phenotype C (HA+USG): presence of Clinical hyperandrogenism or hyperandrogenemia and polycystic ovaries
- Non-hyperandrogenic PCOS or Phenotype D (OA+USG): presence of Oligomenorrhea/anovulation and polycystic ovaries

Phenotype A	HA+OA+USG	clinical hyperandrogenism/ hyperandrogenemia, oligomenorrhea/anovulation, and polycystic ovaries
Phenotype B	HA+OA	Clinical hyperandrogenism or hyperandrogenemia and oligomenorrhea/anovulation
Phenotype C	HA+USG	Clinical hyperandrogenism or hyperandrogenemia and polycystic ovaries
Phenotype D	OA+USG	Oligomenorrhea/anovulation and polycystic ovaries

The survey study showed 5 types of observations:

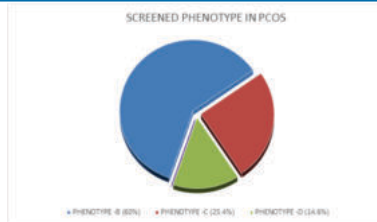
1. Polycystic ovaries - Positive USG findings
2. Menstrual abnormalities/Irregular menses/ oligomenorrhoea
3. Hirsutism
4. Acne
5. Darkening of skin/Acanthosis nigricans

In our survey the above observations are seen in various combinations showing various phenotypes (A, B,C,D) according to Rotterdam criteria for diagnosis of PCOS. These are given in the table below:

S. No.	NAME OF COLLEGE	NO. OF CASES SCREENED	NO. OF PCOS CASES FOUND	PHENO-TYPE (A/B/C/D)
1.	Bakson HMC & Hospital, Greater Noida	259	<ul style="list-style-type: none"> <li>• OA*+ HA**=50 cases</li> <li>• USC***+HA = 21 cases</li> <li>• USG+OA= 12 cases</li> </ul> TOTAL= 83	B C D
2.	IIMT College, Greater Noida	51	<ul style="list-style-type: none"> <li>• OA+HA=11</li> </ul> TOTAL=11	B
3.	Galgottia College	47	<ul style="list-style-type: none"> <li>• USG+HA=5</li> <li>• USG+OA=4</li> <li>• OA+HA=4</li> </ul> TOTAL=13	C D B
4.	Dr. M.P.K. College	85	<ul style="list-style-type: none"> <li>• OA+HA=13</li> <li>• USG+HA=7</li> <li>• USG+OA=3</li> </ul> TOTAL=23	B C D

OA\*: Oligomenorrhoea/ Anovulation; HA\*\*: Hyperandrogenism; USG\*\*\*: Ultrasonography

Total number of patients screened is 442, out of which 130 subjects were found positive for diagnosis of PCOS under Rotterdam criteria. In these 130 subjects 78 Cases were of phenotype B (60%), 33 cases of phenotype C (25.4%) and 19 cases of phenotype D (14.6 %).



**PREVALENCE**= (Number of people in sample with characteristic/Total number of people in sample) x 100  
 = (130/442) x 100 = 29.4 %

**CONCLUSION**

In the survey, we have found that the maximum number of cases are of Phenotype B in which menstrual irregularity along with clinical hyperandrogenism were present together indicating that maximum people are unaware that they might suffer from PCOS. The ultra-modern lifestyle of students comprising of eating junk food of high glycaemic index, lack of physical activity and increased BMI along with disrupted circadian rhythm due to overuse of laptop, mobiles and social media has predisposed to developing PCOS. So, through our survey we made them aware the importance of USG and other investigations and motivated them all to take care of their reproductive health. we had started treating patients with homoeopathic medicines. In the second step we will start publishing cases those who relieved with homoeopathic medicines.

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