

# DEMOGRAPHIC PROFILE, PREVALENCE AND TREATMENT MODALITIES RECEIVED BY PATIENTS WITH POLYCYSTIC OVARIAN SYNDROME: A DESCRIPTIVE STUDY FROM A RURAL TERTIARY CARE HOSPITAL

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### Abstract:

**Background:** Polycystic Ovarian Syndrome (PCOS) is a physiological disorder that causes many negative effects involving a variety of systems in the body, such as the endocrine, metabolic, psychological, and reproductive systems. The manifestation and expression of PCOS symptoms are variable from person to person. The controversy concerning the PCOS diagnosis and treatment contributes to the overall current complexities of the syndrome.

**Method:** Descriptive, prospective cross-sectional study design. Women of reproductive age group (15-35yrs), presenting with infertility, irregular menstruation, acne, hirsutism, obesity were included. Detailed history with specific emphasis on history of infertility, menstrual history i.e. history of oligomenorrhoea; regular or irregular menses, obesity, and presence of hirsutism; acne; alopecia; change of voice was done. Medical (OCP's, Metformin, ART, Ovulation Induction followed by follicular monitoring), Surgical (LOD), Combined (medical + surgical) were recorded.

**Result:** In the current study, the prevalence of PCOS was found to be 1.49%. Maximum patients presented with the symptoms of PCOS in the 3<sup>rd</sup> decade of life. Maximum no of patients age of menarche was 14 Yrs (34.5%), common chief complaint of the patients was infertility 113. Out of 139 cases, 106 (76.3%) cases presented with irregular menses. Patients presenting with oligomenorrhoea were 66 (47.5%), 102 (73.4%) showed no evidence of hyperandrogenism. Out of 139 patients studied, 74 (53.2%) patients underwent medical management in which 34 patients received only OCP's, and 40 patients received combination of drugs for ovulation induction and/or hyperandrogenism; 21(15.1%) patients underwent diagnostic hysterolaparoscopy followed by LOD (exclusive surgical management); 44 (%) patients received combined medical and surgical management.

**Conclusion:** In conclusion, PCOS is becoming a more prevalent disorder among women of reproductive age with lifelong complications. One of the most challenging aspects of this syndrome is its ambiguous diagnostic criteria and vast complexity of characteristics.

**Keywords:** Polycystic Ovarian Syndrome, treatment modalities, Demographic profile, prevalence

### Introduction:

Polycystic Ovarian Syndrome (PCOS) is a physiological disorder that causes many negative effects involving a variety of systems in the body, such as

the endocrine, metabolic, psychological, and reproductive systems.<sup>1</sup> The three principal features of the syndrome include ovulatory dysfunction, polycystic ovarian morphology, & hyperandrogenism.<sup>2</sup> Understanding the complexities of a

PCOS diagnosis is relevant to understanding the multiple bio-psychosocial and cultural implications for female metabolic and reproductive health. The manifestation and expression of PCOS symptoms are variable from person to person. Also, the controversy concerning the PCOS diagnosis and treatment contributes to the overall current complexities of the syndrome.<sup>3</sup> The indefinite diagnostic criteria in addition to its immense intricacy makes PCOS a challenging area of research. The prevalence of PCOS is on the rise in developing nations like India, which is undergoing rapid nutritional transition towards an obesogenic diet and lifestyle as a result of sedentary lives. According to Abbott et.<sup>4</sup> 2005, Xita and Tsatsoulis<sup>5</sup> 2006 PCOS is a disorder affecting approximately 5-10%<sup>6</sup> of the female population in the developed countries. The aim of this study is to review the present status and formulate an interesting and clinically relevant research direction that is essential to move the field of PCOS forward especially in the rural population.

**Aim of the study:** To study the demographic profile, prevalence and treatment modalities received by patients with polycystic ovarian syndrome

### Methodology

This is a descriptive, prospective cross-sectional study design. The study was approved by IEC of our institutional ethics committee and informed consent was obtained from the patients and carried out in the Department of Obstetrics and Gynaecology of Pravara Rural Hospital, Loni, during a period of 2 years from Sept. 2014 to Oct. 2016. Consecutive sample method was used and total One thirty nine patients were included in the present study. All the patients who fulfilled the following criteria were included in study.

**Inclusion criteria:** Women of reproductive age group (15-35yrs), presenting with infertility, irregular menstruation, acne, hirsutism, obesity.

**Exclusion criteria:** Young women who had had their menarche less than three years, with secondary amenorrhoea, hyperglycemia, hyperthyroidism, hypothyroidism etc. Women having medical diseases such as heart disease, lung and renal disease etc.

**Methodology:** The following information was recorded of the patient

**History:** Detailed history with specific emphasis on history of infertility, menstrual history i.e. history of oligomenorrhoea; regular or irregular menses, obesity, and presence of hirsutism; acne; alopecia; change of voice was done.

**Clinical examination:** Detailed clinical examination at the time of presentation was done for BMI and features of hyperandrogenism.

**Treatment modalities:** Medical (OCP's, Metformin, ART, Ovulation Induction followed by follicular monitoring), Surgical (LOD), Combined (medical + surgical) were recorded.

Statistical analysis: The data was recorded in Microsoft excel and presented in the form percentage.

### Results

**Table 1 : Prevalence of PCOS in PRH**

Total No. of gynaec. patients who attended the OPD in the study period of 2 years	9325
PCOS cases with symptoms	139
Prevalence of PCOS in PRH	1.49 %

**Table 2 : Age of presentation of PCOS patients**

Age of presentation	No of patients	%
15 - 20 YRS (2 <sup>nd</sup> decade)	20	14.3
21 - 30 YRS (3 <sup>rd</sup> decade)	111	79.9
31 - 35 YRS (4 <sup>th</sup> decade)	8	5.8

**Table 3 : Demographic distribution of patients with PCOS**

Residence	No of patients	%
Rural	135	97.1
Urban	4	2.9

**Table 4 : Educational status of patients with PCOS**

Education level	No. of patients	%
Uneducated	93	66.9
Primary (1 <sup>ST</sup> -7 <sup>TH</sup> )	25	18
Lower secondary (8 <sup>th</sup> -10 <sup>th</sup> )	17	12.2
Higher secondary (11 <sup>th</sup> , 12 <sup>th</sup> )	1	0.7
Graduate	3	2.2

**Table 5 : Age at menarche of PCOS patients**

Age at menarche (Yrs.)	No of patients	%
11	2	1.4
12	25	18
13	39	28.1
14	48	34.5
15	13	9.4
16	12	8.6
Mean $\pm$ SD	14.87 $\pm$ 3.32	

**Table 6: Marital status of patients with PCOS**

Marital status	No of patients	%
Unmarried	12	8.6
Married	127	91.4
TOTAL	139	100%

**Table 7: History of infertility in PCOS patients**

History of infertility	No. of patients	%
Present	113	89
Absent	14	11

**Table 8 : Menstrual frequency of patients with PCOS**

Regularity of menses	No. of patients	%
Regular	33	23.7
Irregular	106	76.3

**Table 9 : Oligomenorrhoea in patients with PCOS**

History of oligomenorrhoea	No. of patients	%
Present	66	47.5
Absent	73	52.5

**Table 10: BMI of PCOS patients**

BMI Of Patient	No. of patients	%
Underweight (<18.5)	36	25.9
Normal (18.5-24.9)	94	67.6
Overweight (25-29.9)	7	5.1
Obese (>30)	2	1.4

**Table 11: Evidence of hyperandrogenism in patients with PCOS**

Patients with E/O Hyperandrogenism	No. of patients	%
Acne	4	2.9
Hirsutism	33	23.7
Alopecia (Androgenic)	0	0
No evidence	102	73.4

**Table 12 : Treatment modalities received by patients with PCOS**

A. Medical Management						
Sr.No.	Marital status	Goal of treatment	Treatment Modality	Drugs	No. of patients (%)	
1.	Unmarried	a. Regularization of menstrual cycle b. Hyperandrogenism	OCP's only	EE + LN	24(17.3)	
				EE + CYP	10 (7.2)	
			OCP's + Metformin	EE + LN + M	1 (0.7)	
				EE + CYP + M	2 (1.4)	
2.	Married	(without menstrual complaints) a. Fertility b. Hyperandrogenism treatment	Ovulation Induction	CC	21 (15.1)	
			Ovulation Induction + Metformin	CC + M	1 (0.7)	
		(with menstrual complaints) a. Fertility b. Hyperandrogenism	OCP's + Ovulation Induction	EE + LN + CC	12 (8.6)	
				EE + CYP + CC	3 (2.2)	
			<b>B. Surgical Management</b>			
			1.	Married	Fertility	Diagnostic hysterolaparoscopy followed by LOD
<b>C. Surgical + Medical Management</b>						
1.	Married	a. Fertility b. Ovulatory dysfunction c. Hyperandrogenism	Surgical +Ovulation Induction	LOD + CC	21 (15.1)	
				Surgical +Metformin	LOD + M	4 (2.9)
			Surgical + OCP's	LOD + EE + LN	14(10.1)	
				LOD + EE + CYP	5 (3.6)	

**Discussion**

The prevalence estimates for PCOS, as defined by the NIH/NICHD criteria, indicate that PCOS is affecting 4%–8% of women of reproductive age.<sup>7,8</sup> Reports from the United States, the United Kingdom, Spain, Greece, Australia, and Mexico demonstrate a strikingly similar prevalence of PCOS, as defined by the NIH 1990 criteria, ranging from 6-9%.<sup>9</sup> As per the European Society for Human Reproduction and Embryology/American Society for Reproductive Medicine criteria, the prevalence of PCOS is 15%–20%. In the United States, polycystic ovarian syndrome (PCOS) is one of the most common endocrine disorders of reproductive-age women, with a prevalence of 4-12%.<sup>8</sup>

As per Dunaif A<sup>8</sup> common age of onset for PCOS is adolescence while the common time of diagnosis is during a woman’s third or fourth decade of life because the majority of symptoms do not become evident until a woman reaches her twenties or thirties, even though some symptoms may appear starting at menarche. Majority of the patients in the current study were married (91.4%) and belonged to 3<sup>rd</sup> decade (79.9%) of life that presented with chief complaint of infertility (89%). These patients were found to have PCOS on further investigation. In the current study in PRH, majority the patients belonged to the age group of 21 – 30 Yrs. The mean age of presentation of PCOS is 26.37 ± 9.83 yrs.

**Table 13: Incidence of PCOS as per age at menarche by various authors**

Age at menarche (years)	Ramanand et. al. (2013) <sup>11</sup>	Present study
11	1.6	1.4
12	16.6	18
13	28.3	28.1
14	32.5	34.5
15	8.3	9.4

The majority (80.6%) of the PCOS patients had their age at menarche in the range of 12 – 14 years. This shows that there is no correlation of age at menarche and PCOS. The same is proven by a study done by Ramand et. Al<sup>11</sup>.

**Table 14: Correlation of infertility with PCOS by various authors**

Author	Infertility
Sheehan (2004) <sup>12</sup>	75 %
Azziz R (2007) <sup>13</sup>	14 - 15 %
Teede et. al. (2010) <sup>14</sup>	40 %
Ramanand et. al. <sup>11</sup> (2013)	46.68 %
Present study(2016)	89 %

Majority patients 106 (76.3%) in the current study at Pravara Rural Hospital, presented with irregular menses suggestive of ovulatory dysfunction. This finding is consistent with other authors which prove that irregular menstruation is an important clinical feature in patients with PCOS. Oligomenorrhoea, which is another marker of ovulatory dysfunction, was present in 66 (47.5%) cases in the present study. Remaining 73 (52.5%) had no such history but were associated with irregular menses.

BMI is a marker of obesity. Only 2 (1.4%) patients were found to be obese and 7 (5.1%) belonged to overweight criteria. Of the remaining 120 patients, 94 (67.6%) had normal BMI and 36 (25.9%) patients were underweight.

Over 90% of normally menstruating women with hirsutism were identified through ultrasound to have polycystic ovaries as per Adams et. al.<sup>15</sup> In addition, PCOS occurs in 50% of women with less severe distribution of unwanted hair growth. Acne can also be a marker of hyperandrogenism but is less prevalent in PCOS and less specific than hirsutism.

Mode of the treatment depends on the need of the patients. Unmarried patients presented with ovulatory dysfunction and/or hyperandrogenism features. Married patients had main complaints of infertility with/without ovulatory dysfunction or hyperandrogenism. In our institute, majority (113) of the patients presented with infertility as the chief complaint, hence the main aim of treatment in such patients was to treat infertility. Amongst Medical Management done in 74 patients, OCP’s were given in 34 patients; OCP with ovulation induction was done in 15 patients; OCP’s with metformin was given in 3 patients; Exclusive ovulation induction was done in 21 patients and Ovulation induction with Metformin was done in 1 patient only.

Exclusive Surgical Management was carried out for 21 patients with infertility. These patients showing only clinical features of PCOS (i.e. no USG/Hormonal evidence) along with failed medical management were taken up for diagnostic hysterolaparoscopy followed by LOD. A combination of Surgical and Medical Management was given in 44 patients. The main aim of treatment in this group was to treat infertility with/without ovulatory dysfunction. Surgery f/b Ovulation induction was done in 21 patients and 4 patients required surgery with metformin. In the remaining 19 patients, OCP’s were given after surgery as a mode of treatment.

Lifestyle modification advice was given to all the patients. OCP's were given in 2 combinations. One was plain (ethinyl estradiol + levonorgestrel) and other was in combination with cyproterone acetate for the treatment of Hyperandrogenism. In addition to above treatment, follicular monitoring was done in 77 patients. Of which 44 were medically managed and 33 underwent surgery.

## Conclusion

The prevalence of PCOS was found to be 1.49 %. Out of 139 patients, majority (79.9%) of the patients presented with complaints of PCOS in the third decade of life. Age at menarche of 80.6 % patients was in the group of 12 - 14 years which proved that the age at menarche is not affected by PCOS. Of the married patients, 89 % presented with the chief complaints of infertility, and 76.3% patients presented with irregular menses. Hirsutism which is the most important feature of Hyperandrogenism was present in 23.7% of patients. Exclusive Medical and surgical treatment were given to 74 and 21 patients respectively. Combined medical and surgical treatment was required in 44 patients. Follicular monitoring was an aid for treatment of infertility in 55.4% of the patients.

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