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## Research Article

# A Review On Assessment And Management Of Polycystic Ovarian Syndrome (PCOS) In The Department Of Gynaecology Of Private Hospital

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## ABSTRACT

Polycystic Ovary Syndrome (PCOS) is a multifaceted hormonal disorder that affects approximately 5-10% of women of reproductive age. The condition is primarily characterized by three key features: chronic anovulation (irregular or absent menstrual periods), hyperandrogenism (elevated levels of male hormones), and polycystic ovaries (numerous small cysts on the ovaries). While not all women with PCOS will present with every symptom, common signs include irregular periods, excess hair growth (hirsutism), acne, weight gain, and thinning hair on the scalp. The exact cause of PCOS remains unclear, but genetic predisposition and environmental factors, such as lifestyle and diet, play a role. Insulin resistance, a condition where the body's cells do not respond effectively to insulin, is also strongly associated with PCOS. This resistance can lead to increased insulin production, which may stimulate the ovaries to produce more androgens, worsening PCOS symptoms. PCOS is linked to several health risks beyond reproductive concerns, including an increased likelihood of developing type 2 diabetes, metabolic syndrome, cardiovascular diseases, and endometrial cancer. Women with PCOS may also experience difficulty conceiving due to irregular ovulation or lack of ovulation. Management of PCOS is tailored to the individual's symptoms and goals. Treatment often includes lifestyle interventions such as weight loss and exercise, which can help improve insulin sensitivity and hormonal balance. Medications may be prescribed to regulate menstrual cycles, reduce androgen levels (such as anti-androgens or oral contraceptives), or aid with fertility (such as clomiphene or letrozole). In cases of insulin resistance, drugs like metformin are commonly used. For women seeking pregnancy, fertility treatments including in vitro fertilization (IVF) may be necessary. PCOS is a chronic condition that requires ongoing monitoring and management to prevent long-term complications and improve quality of life.

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## INTRODUCTION

Polycystic ovarian syndrome (PCOS) is one of the most common endocrine illnesses in women, affecting 6- 15% of the population. (1) It is primarily identified by an extremely irregular menstrual cycle that lacks ovulation. PCOS is associated with the adrenal gland, hypothalamus, pituitary, ovaries, and peripheral adipose tissue. These glands act together to establish an overall imbalance. The majority of symptoms appear at the beginning of menstruation in teenagers. Nonetheless, some women exhibit symptoms in their early to mid-twenties. It is commonly referred to as hyperandrogenic anovulation (HA) or Stein-Leventhal syndrome. It is also known as syndrome "O," and it is distinguished by excessive feeding, excessive insulin production, ovarian confusion, and ovulatory cycle disruption. (2) It has been connected to type-2 diabetes and repeated miscarriages. (3)

### FEATURES;

PCOS is characterized by excessive male hormone production and many ovarian cysts. Women diagnosed with PCOS may have the following common symptoms. Hirsutism can cause,

- Irregular or heavy periods
- Acne
- Greasy skin
- Hair loss
- Insulin resistance
- Fertility problems, and
- Body weight disorders. (4)

These characteristics are independent of a patient's polycystic ovaries or PCOS diagnosis. In 2003, scientists reviewed their concerns regarding PCOS and published their findings in 2004, concluding that it a syndrome of ovarian malfunction. (5)

### HISTORY;

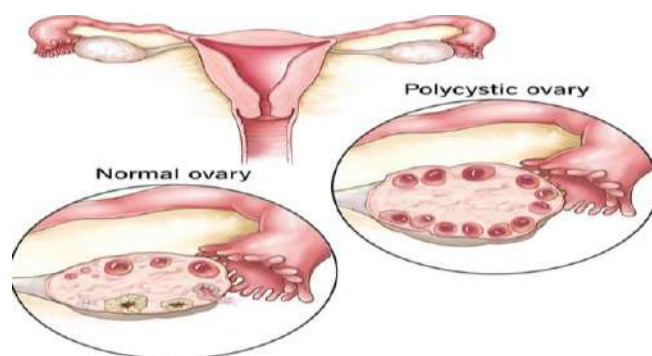
Although polycystic ovaries were first described in the nineteenth century, the disease was not termed after Stein and Leventhal until 1935. Stein and Leventhal connected amenorrhea, obesity, and

hirsutism to polycystic ovaries in seven individuals, and so PCOS was first known as Stein-Leventhal syndrome. (6, 7) In 1721, young married women who were infertile and moderately overweight had larger-than-normal ovaries, although this was not recognized. Chereau described sclerocystic changes in ovaries in 1844, but they were not recognized until Stein and Leventhal's extensive investigation. In 1985, Adams and colleagues conducted further research and discovered. (7)

### PATHOPHYSIOLOGY;

The exact origin of PCOS or PCOD is uncertain, however there is significant insulin resistance, even in thin individuals. Hyperinsulinemia stimulates androgen production, resulting in decreased protein binding and increased free androgen levels. (8) PCOS resistance is due to hormonal abnormalities. Obesity has a bidirectional relationship with PCOS, as consistent weight gain exacerbates the condition's severity. Exercise and nutritional adjustments can significantly reduce PCOS symptoms. PCOS affects the ovaries, which are a woman's reproductive organs that generate the hormones progesterone and oestrogen and, ultimately, control the menstrual cycle. The notion that women do not require male hormones is false; in fact, women's ovaries produce a specific amount of male hormones known as androgens. In PCOS patients, elevated levels of luteinizing hormone, which are three times higher than follicle stimulating hormone, lead the ovaries to generate more testosterone, promoting the growth of facial hair and acne.(9)





### CAUSES;

The precise cause of PCOS or PCOD has yet to be determined, but a few factors are associated with the condition, including the patient's genetic background, lifestyle changes, a lack of regular exercise, dietary changes, a loss of work-life balance, exposure to pollution and mobile phone radiation, and, most importantly, stress. (10) As human stress levels rise on a daily basis, stress has emerged as one of the most common causes of PCOS. PCOS can lead to hypertension, diabetes mellitus (the most prevalent kind), an increased risk of uterine cancer, and a variety of cardiovascular disorders. (8, 11, 12, 13) As a result, their bodies make more testosterone and less SHBG (a protein that links testosterone) in their liver and ovaries. Variations in SHBG and testosterone levels elevate free testosterone levels, resulting in irregular menstruation and skin problems. (14, 15) Acne, hirsutism, and irregular ovulation can be caused by various factors, including:

- Hormonal,
- Nutritional,
- Intrauterine,
- Genetic and related fat,
- Insulin, and
- Skin sensitivity. (10)

### DIAGNOSIS;

- Hormonal Blood tests
- Transvaginal Ultrasound
- Glucose tolerance test
- Lipid profile test

- Androgen level test (16)

### TREATMENT;

PCOS, while some believe there is no cure for the condition because it is a lifetime condition, others have found that lifestyles modifications and hormonal therapy can effectively manage PCOS. (14) It is vital to obtain treatment for PCOS in order to live a stress-free life because the illness has a variety of health consequences, some of which include the non-functioning or dysfunction of specific organs. Because obesity is directly associated with a drop in vitamin-D levels, a women who is fat may be deficient in the nutrient and at risk of developing osteoporosis or rickettsia.(17) Therefore, changing one's lifestyle is the first step in the therapeutic process. There are specific lifestyle management strategies. A few lifestyle management techniques are effective for PCOS patients: A stress-free lifestyle; a reduction in the consumption of processed and fast food; a reduction in the consumption of alcoholic beverages; a modification in behaviour; a low-carb diet; regular physical activity or exercise; and a regular check-up on vitamin-D levels are just a few of the strategies that can help to prevent obesity or overweight in individuals. (17, 10, 18)

### METHODOLOGY;

Polycystic Ovary Syndrome (PCOS) is a common endocrine disorder affecting women of reproductive age. The methodology for studying and diagnosing PCOS often involves a combination of clinical evaluation, laboratory tests, and imaging. Here's an overview of the key methodological approaches used in the study and diagnosis of PCOS:

#### 1. Clinical Diagnosis

PCOS is typically diagnosed based on the Rotterdam Criteria (2003), which require at least two of the following three features for diagnosis:

- Oligo-ovulation or anovulation (irregular or absent menstrual periods)

- Hyperandrogenism, either clinically (hirsutism, acne) or biochemically (elevated androgen levels)
- Polycystic ovaries on ultrasound (presence of 12 or more follicles in each ovary or increased ovarian volume)
- The clinical approach includes a detailed medical history and physical examination to assess signs of hyperandrogenism, menstrual irregularities, and potential metabolic disturbances. (19)

## 2. Laboratory Testing

Laboratory testing is critical to evaluate hormonal imbalances and rule out other causes of hyperandrogenism or menstrual irregularities.

- **Androgen levels:**

Serum testosterone and dehydroepiandrosterone sulphate (DHEAS) are commonly measured.

- **Luteinizing hormone (LH) and follicle-stimulating hormone (FSH):**

The LH/FSH ratio is often elevated in women with PCOS.

- **Insulin resistance markers:**

Fasting insulin, glucose tolerance tests, or HOMA-IR (Homeostatic Model Assessment for Insulin Resistance) are used to evaluate insulin resistance.

- **Thyroid function and prolactin levels:**

These are measured to exclude other endocrine disorders (e.g., hypothyroidism, hyperprolactinemia). (20)

## 3. Imaging

Transvaginal ultrasound is used to visualize the ovaries and assess the presence of multiple small

follicles (often described as a “string of pearls” appearance) or increased ovarian volume.

- The Rotterdam Criteria define polycystic ovaries as the presence of 12 or more follicles in one or both ovaries, each measuring 2–9 mm, and/or increased ovarian volume (>10 cm<sup>3</sup>).
- Ultrasound can also rule out other causes of menstrual irregularity, such as ovarian tumours or endometrial pathology.(21)

## 4. Metabolic Assessment

Since PCOS is associated with an increased risk of metabolic syndrome, diabetes, and cardiovascular disease, the assessment of metabolic health is essential. This includes:

- Fasting blood glucose and lipid profile to assess for dyslipidemia and insulin resistance.
- Oral glucose tolerance test (OGTT) to evaluate glucose metabolism, especially in overweight or obese patients.(22)

## 5. Lifestyle and Behavioural Assessment

PCOS is associated with obesity, and weight management plays a key role in treatment. Lifestyle assessments and interventions, including diet and exercise, are critical for long-term management of symptoms, especially related to insulin resistance and cardiovascular risk. (23)

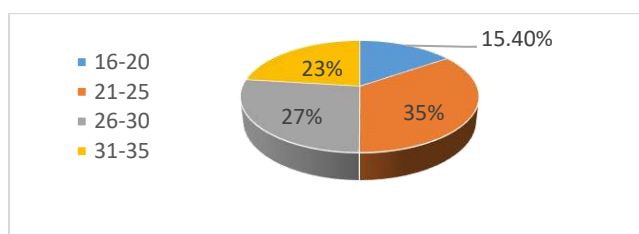
## RESULT;

### Demographic details:

A total of 52 patients have participated in the study. The majority of patients were from the 16-20 (8) age group, followed by 21-25 (18) age group, followed by 26-30 (14) age group and 31-35 (12). The mean age of our study was found to be and it was given in Table no.1

**Table 1: Demographic characteristics of 52 patients (n=52)**

S. NO	AGE GROUPS	NO. OF PATIENTS (N=52)	%
1.	16-20	8	15.4%
2.	21-25	18	34.6%
3.	26-30	14	26.9%
4.	31-35	12	23.1%

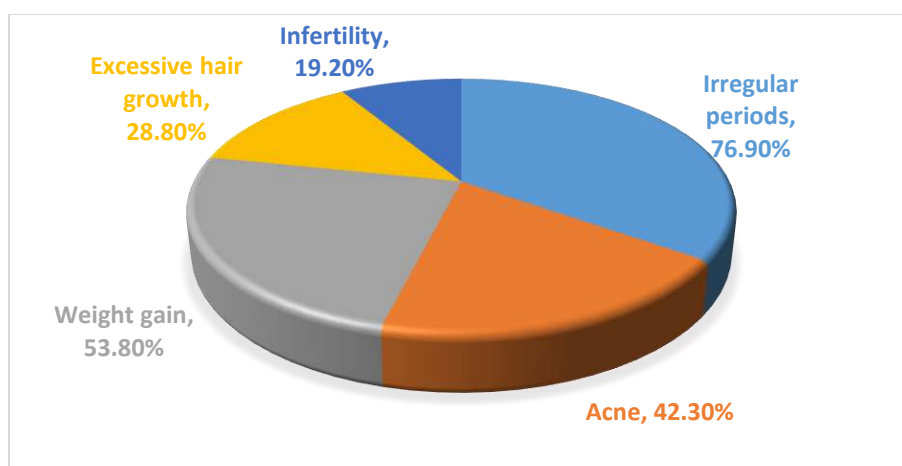


**Figure 1: Demographic characteristics of 52 patients**

Out of 52 patients , 40 patients have Irregular periods, 22 patients have Acne, 28 patients have Weight gain, 15 patients have Excessive hair growth and 10 patients have Infertility and it was given in Table no.2

**Table 2: Distribution of patients based on Signs and Symptoms**

S. NO	SIGNS & SYMPTOMS	NO.OF.PATIENTS (N=52)	%
1.	Irregular periods	40	76.9%
2.	Acne	22	42.3%
3.	Weight gain	28	53.8%
4.	Excessive hair growth	15	28.8%
5.	Infertility	10	19.2%

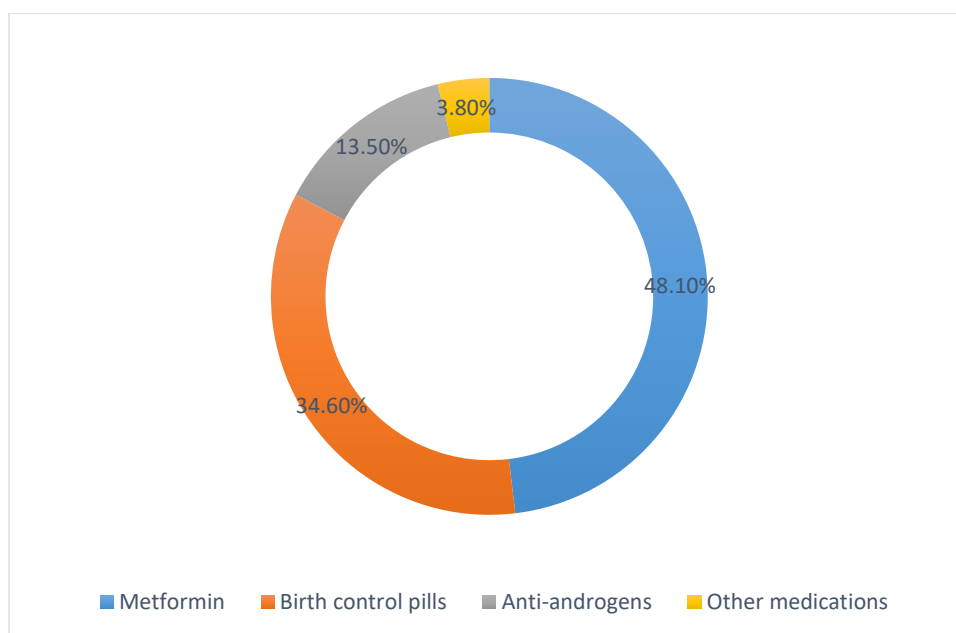


**Figure 2: Distribution of patients based on Signs and Symptoms**

Out of 52 patients, Medications prescribed are 48.1% (25) of Metformin, followed by 34.6% (18) of Birth control pills, 13.5% (7) of Anti-androgens and 3.8% (2) of Other medications and it was given in Table no.3

**Table 3: Distribution of Medication prescribed based on 52 patients**

S. NO	MEDICATIONS PRESCRIBED	NO.OF PATIENTS (N=52)	%
1.	Metformin	25	48.1%
2.	Birth control pills	18	34.6%
3.	Anti-androgens	7	13.5%
4.	Other medications	2	3.8%



**Figure 3: Distribution of Medication prescribed based on 52 patients**

### CONCLUSION:

The findings, which examined the therapy and outcomes of 52 Polycystic Ovary Syndrome (PCOS) patients, highlight the condition's complexity and diversity. PCOS presents with a variety of symptoms, including monthly abnormalities, hyperandrogenism symptoms such as acne and hirsutism, and the appearance of polycystic ovaries on ultrasound. Accurate diagnosis is based on the Rotterdam criteria, which need a thorough evaluation to differentiate PCOS from other endocrine illnesses. Treatment strategies are multifaceted, including hormonal therapies to regulate menstrual cycles and manage hyperandrogenism, insulin-sensitizing agents such as metformin to treat insulin resistance, and lifestyle interventions such as diet and exercise to manage weight and improve overall health. Ovulation induction and assisted reproductive technologies may be required for patients experiencing fertility difficulties. Long-term care should prioritize frequent monitoring to evaluate symptom development and manage associated concerns such as type 2 diabetes and cardiovascular disease. Patient education is essential for empowering people to make informed

lifestyle changes and address both the physical and emotional elements of PCOS. Overall, a targeted, holistic strategy is required for effective PCOS management and improving patients' quality of life.

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