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RESEARCH ARTICLE

Clinical Profile and Hormonal Patterns in Women with Newly Diagnosed PCOD Attending a Tertiary Care Hospital

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ABSTRACT

Background: Polycystic ovarian disease is an endocrine condition of hormonal imbalance, irregular menstrual periods, and high androgen levels and is the most common endocrine disease in women of reproductive age. It commonly presents with metabolic derangements such as insulin resistance, obesity and dyslipidaemia, which may cause infertility and raise the risk of diabetes and cardiovascular disease in the long run.

Objective: To evaluate the clinical profile and hormonal patterns in newly diagnosed PCOD patients.

Methods: This cross-sectional study was conducted at PMCH, Patna, from September 2025 to February 2026, including 200 women diagnosed with PCOD. Clinical features, BMI, and hormonal parameters (LH, FSH, testosterone, prolactin) were assessed. Statistical analysis included chi-square test and t-test, with $p<0.05$ considered significant.

Results: The majority of patients were either overweight or obese (70%). The most prevalent symptom was irregular menstruation (70%). Increased LH levels were detected in 65% of patients and increased testosterone levels in 55% of individuals. BMI was significantly associated with hormonal imbalance ($P<0.05$).

Conclusion: PCOD is strongly associated with obesity and hormonal disturbances. Early diagnosis and lifestyle modification are crucial for management.

Keywords: PCOD, Hormonal disturbances, Obesity, diagnosis, Lifestyle modification.

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Introduction

Polycystic ovarian disease (PCOD) is one of the most common endocrine illnesses in women of reproductive age, with a prevalence of 6% to 20% depending upon the diagnostic criteria. It is characterised by a combination of clinical, biochemical and radiological characteristics such as menstruation abnormalities, hyperandrogenism and polycystic ovarian morphology. This disorder has important reproductive, metabolic and psychological ramifications and is an urgent public health concern[1]. The pathophysiology of PCOD is complex and is associated with hormonal imbalance, insulin resistance and hereditary risk. High amounts of luteinizing hormone (LH) and androgens, together with relatively low or normal follicle-stimulating hormone (FSH), lead to disturbed follicular development and anovulation. Insulin resistance stimulates ovarian androgen production making hyperandrogenism worse[2].

Features of PCOD in clinical practice are irregular menstrual cycles, hirsutism, acne, infertility and weight gain. PCOD is often linked with obesity and plays a significant role in aggravating the hormonal and metabolic disorders. It is important to identify these clinical symptoms early so that proper intervention can be provided. Hormonal profiling is an important part of diagnosis and management of PCOD.

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Abnormal levels of LH, FSH, testosterone and prolactin are useful in determining the severity of the condition and guiding treatment strategies. Ultrasound testing is also useful in the diagnosis of polycystic ovarian morphology. PCOD is very common and yet underdiagnosed, more so in underdeveloped nations[3].

Limited awareness, societal stigma and inaccessibility to healthcare facilities contribute to delayed diagnosis and management. Moreover, the clinical presentation is variable, making the development of universal diagnostic criteria more difficult. To research the clinical profile and hormonal trends of women with newly diagnosed polycystic ovarian disease attending a tertiary care hospital. Understanding these patterns can help in early diagnosis, risk stratification and planning of tailored treatment options[4].

Methods

- **Study Design:** Cross-sectional study
- **Duration:** Sept 2025 – Feb 2026
- **Setting:** PMCH, Patna
- **Sample Size:** 200

Inclusion Criteria

- Women aged 15–40 years
- Newly diagnosed PCOD

Exclusion Criteria

- Thyroid disorders
- Cushing syndrome
- Hyperprolactinemia (secondary causes)

Statistical Analysis

Associations between categorical variables were compared using Chi-square test, while means of continuous variables between groups were compared by Student's t-test. All data were analysed for significant differences or connections using conventional statistical methods. Statistical significance was defined as $p < 0.05$, suggesting that the observed results were unlikely due to chance.

Results

Table 1: BMI Distribution

BMI Category	*Number (%)*	*p-value*
Normal	60 (30%)	
Overweight	80 (40%)	
Obese	60 (30%)	0.03

Table 2: Clinical Features

Symptom	*Number (%)*	*p-value*
Irregular cycles	140 (70%)	
Hirsutism	90 (45%)	
Acne	85 (42.5%)	
Infertility	70 (35%)	0.02

Table 3: Hormonal Profile

Parameter	*Elevated n (%)*	*p-value*
LH	130 (65%)	
FSH	80 (40%)	
Testosterone	110 (55%)	
Prolactin	60 (30%)	0.01

Table 4: Ultrasound Findings

Finding	*Number (%)*	*p-value*
Polycystic ovaries	150 (75%)	
Normal	50 (25%)	0.04

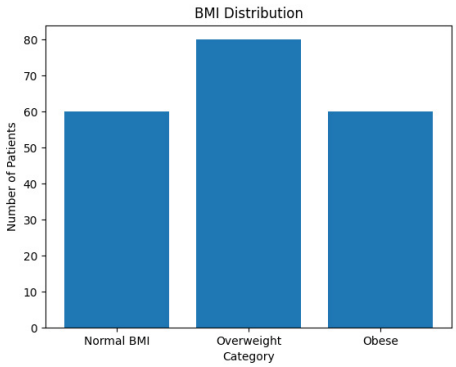

Figure 1: BMI distribution

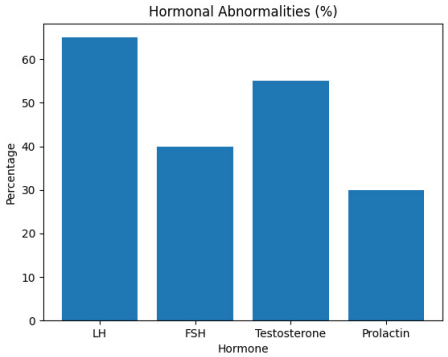

Figure 2: Hormonal abnormalities

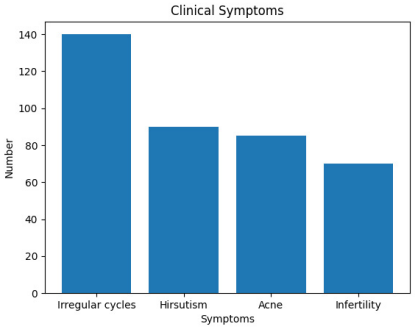

Figure 3: Clinical symptoms

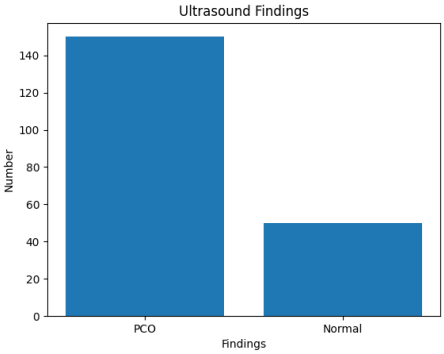

Figure 4: Ultrasound findings

Discussion

This cross-sectional study assessed the clinical and hormonal profile in newly diagnosed cases of PCOD in women. The results indicate a tight link between obesity, hormonal imbalance and the clinical signs of the disease. The majority of patients in this study were overweight or obese, consistent with previous literature which identified obesity as a primary contributor to PCOD. Increased adiposity is known to worsen insulin resistance, which in turn increases hyperandrogenism and disturbs normal ovarian function [5]. This sets up a vicious loop that impairs both metabolic and reproductive results. The most prevalent clinical presentation was menstrual irregularity, seen in 70% of patients. This indicates chronic anovulation, a characteristic aspect of PCOD. Other prevalent symptoms were hirsutism and acne, which are signs of hyperandrogenism. In 35% of patient's infertility was present, indicating the reproductive implications of the condition[6].

Hormonal study revealed high LH in 65% and high testosterone in 55% of the patients, indicating the involvement of hormonal imbalance in the pathophysiology of PCOD. Impaired follicular maturation and ovulatory dysfunction is due to the changed LH/FSH ratio. A minority of patients had elevated prolactin levels which may further add to menstrual abnormalities[7].

Ultrasound findings demonstrated polycystic ovarian morphology in 75% of patients and so added to the diagnostic relevance. However, it is vital to remember that ultrasound alone is not sufficient for diagnosis and should be correlated with other clinical and biochemical data. Statistical study revealed substantial correlations between BMI and clinical characteristics and hormonal anomalies. These results suggest that a holistic approach to PCOD therapy needs to be taken into consideration, taking into account both metabolic and reproductive components[8].

The characteristics of this study are a properly characterised population and complete investigation of clinical and hormonal markers. However, its shortcomings include a cross-sectional design that does not provide causal inference, and a single-center configuration which may limit generalizability. Overall the study shows the role of early diagnosis and lifestyle changes in the management of PCOD. Weight loss, dietary changes, and exercise can have a dramatic effect on hormonal balance and clinical outcome[9].

Conclusion

This study proved that PCOD is a complex condition highly related with obesity, hormonal imbalance and many clinical symptoms. The significant prevalence of menstrual abnormalities, hyperandrogenic symptoms and aberrant hormonal profiles highlights the necessity of early detection and thorough evaluation. Obesity was found to be an important contributing factor and highlights the necessity of lifestyle change in illness management. Hormonal abnormalities, notably high LH and testosterone levels, are fundamental to the pathogenesis of PCOD and should be frequently examined. Ultrasound findings are helpful in confirming the diagnosis but should be correlated with clinical and biochemical data. Effective management requires a comprehensive approach including lifestyle intervention, hormonal therapy and patient education.

Early diagnosis and rapid intervention can prevent long term consequences such as infertility, metabolic syndrome and cardiovascular disease. There is also a need to raise awareness among patients and healthcare providers to improve results. Hence, a complete management strategy

addressing metabolic and reproductive health is needed for PCOD. Future research using bigger populations and longitudinal follow-up are needed to better understand illness progression and optimise treatment approaches.

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