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To Study the PCOS (Polycystic Ovarian Syndrome) in a Region of Punjab District Fatehgarh Sahib

Ashu Rani
Student of Medical lab sciences at bhai gurdas degree college sangrur.punjab india

Abstract

This research explores the biopsychosocial dimensions of Polycystic Ovarian Syndrome (PCOS) among urban women in Mandi Gobindgarh, Punjab. The study involves 100 participants (50 diagnosed with PCOS and 50 control subjects) and uses a mixed-methods approach, including surveys, interviews, and participant observation. Polycystic Ovarian Syndrome (PCOS) is a prevalent endocrine and metabolic disorder that affects women of reproductive age and is increasingly recognized as a public health concern in India, particularly in urban areas undergoing rapid lifestyle and dietary transitions. This thesis aims to investigate the prevalence, influencing factors, clinical manifestations, and psychosocial implications of PCOS among urban Indian women, with a specific focus on Mandi Gobindgarh, Punjab.Using a mixed-methods approach combining quantitative surveys and qualitative interviews, the study involved 100 participants (50 diagnosed with PCOS and 50 controls) from urban populations. Participants were recruited from RIMT Hospital and through word of mouth. Data collection involved structured questionnaires assessing psychological general well-being (PGWB), body image perception, gender identity, lifestyle, and medical history, supplemented by physical examinations and biochemical tests, including hormone profiles (FSH, LH, AMH, estrogen, SHBG, HCG), insulin levels, glucose tolerance, and ultrasonography.The findings reveal that PCOS prevalence in urban areas was significantly higher (8.9%) compared to rural populations (1%). Most urban participants were found to be overweight or obese, with a mean BMI of 26.5 ± 0.4 kg/m² among PCOS patients. The high intake of junk food, sedentary lifestyles, and chronic stress were commonly reported among urban women. Despite high awareness levels (90.24% in urban vs. 8.34% in rural), misconceptions and delayed diagnosis persist. Interestingly, while biochemical markers such as elevated LH and insulin levels were consistent among PCOS patients, psychosocial issues such as poor body image, anxiety, and diminished self-esteem were also prominent, suggesting a holistic impact of PCOS beyond its physical symptoms.Qualitative insights further highlighted the challenges faced by women with PCOS, including societal pressure, marital expectations, emotional distress, and lack of support, particularly among those living in joint family settings or away from their own familial networks. The study observed that even mild PCOS phenotypes, when left undiagnosed or untreated, contributed to psychological distress and reduced quality of life.The results underscore the necessity for early screening using culturally sensitive diagnostic tools (e.g., Asian BMI standards), public education campaigns, and multidisciplinary approaches combining medical, psychological, and lifestyle interventions. The thesis calls for further research into the biopsychosocial trajectories of PCOS in India, with emphasis on marital status, socioeconomic background, geographic location, and evolving gender norms in urban Indian society.

Keywords: polycystic Ovarian Syndrome (PCOS),Urban India,Biopsychosocial Health, Obesity,Endocrine Disorder Women's Health Body Image Insulin Resistance Lifestyle Disease Reproductive Health Psychosocial Impact

Introduction

PCOS is one of the most prevalent endocrine disorders among women of reproductive age. It manifests with symptoms such as irregular menstruation, hirsutism, acne, and infertility. The study stresses the growing relevance of PCOS in urban India due to lifestyle changes, poor diet, stress, and limited awareness. A biocultural approach is applied to explore the physical and psychological burdens on affected women. Polycystic Ovarian Syndrome (PCOS) is one of the most common endocrine and metabolic disorders affecting women of reproductive age worldwide. Characterized by hormonal imbalances, menstrual irregularities, polycystic ovaries, and often hyperandrogenism, PCOS presents a complex interplay of reproductive, metabolic, and psychological manifestations. While the global prevalence of PCOS ranges between 5% and 10%, recent studies indicate significantly rising trends in developing nations like India, particularly in urban areas where rapid lifestyle changes, westernized diets, stress, and sedentary habits are becoming widespread.

India, as a developing country undergoing intense urbanization, faces a growing burden of non-communicable diseases (NCDs), including PCOS. Despite its prevalence and profound health consequences—ranging from infertility and obesity to insulin resistance and type 2 diabetes—PCOS often remains under diagnosed or mismanaged, especially among adolescents and young women. Social stigma, limited awareness, and lack of access to early diagnosis contribute to this gap.

The increasing incidence of PCOS among urban Indian women highlights not just a medical concern but also a socio-cultural and psychological one. Urban lifestyles marked by dietary shifts, reduced physical activity, disrupted sleep cycles, and heightened psychosocial stress have been identified as potential contributing factors to the development and progression of PCOS. Furthermore, the impact of PCOS extends beyond physical health, affecting mental well-being, body image, gender identity, and overall quality of life.

This thesis aims to study PCOS within the specific urban context of Mandi Gobindgarh, Punjab, using a biopsychosocial framework. It explores not only the prevalence and clinical profile of women diagnosed with PCOS but also their psychological general well-being (PGWB), body image perception, and social support systems. A mixed-methods research approach—comprising clinical assessments, biochemical tests, structured questionnaires, and qualitative interviews—was employed to ensure a comprehensive understanding of the disorder.

The research acknowledges the importance of culturally appropriate diagnostic criteria, such as Asian-specific BMI and waist circumference thresholds, in accurately identifying at-risk individuals. It also advocates for early screening, targeted awareness programs, and integrative treatment approaches combining lifestyle modification, pharmacological intervention, and mental health support.

Through this study, the objective is to contribute meaningfully to the limited literature on PCOS in India, raise awareness about its growing incidence in urban settings, and recommend actionable insights for healthcare practitioners, policymakers, and educators in managing and mitigating the effects of PCOS on Indian women.

Methodology

Study Design

This study was a **prospective, community-based, cross-sectional** investigation designed to assess the prevalence, clinical features, and psychosocial impact of Polycystic Ovarian Syndrome (PCOS) among women in urban and rural settings of Mandi Gobindgarh, Punjab. The study was conducted using a **mixed-methods approach**, combining both quantitative and qualitative research methods to gather comprehensive data on PCOS symptoms, lifestyle factors, and psychological effects.

Study Setting and Duration

The research was carried out at **RIMT Hospital, Mandi Gobindgarh**, under the Department of Obstetrics and Gynaecology, between **November 2024 and November 2025**. Ethical approval for the study was obtained from the **Institutional Ethical Committee**, and informed consent was taken from all participants.

Study Population

The study included **200 women** aged between 18 to 24 years, equally divided into:

- **100 urban participants** (from Mandi Gobindgarh)
- **100 rural participants** (from surrounding villages)

Participants were either diagnosed with PCOS or presented with symptoms suggestive of PCOS based on the **Rotterdam Criteria (2003)**, which includes:

1. Oligo- or anovulation
2. Clinical and/or biochemical signs of hyperandrogenism
3. Polycystic ovaries on ultrasonography

Any two of the above criteria were used for diagnosis.

Sampling Technique

A **purposive sampling method** was employed to recruit participants who had either been diagnosed with PCOS or were suspected of having the syndrome based on self-reported symptoms. Women who were pregnant, on hormonal treatment, or had other endocrine disorders were excluded from the study.

Data Collection Methods

1. Clinical Assessment

All participants underwent a comprehensive clinical evaluation, including:

- Anthropometric measurements: Height, weight, BMI, waist circumference
- Blood pressure measurement
- Signs of hyperandrogenism (hirsutism, acne, alopecia)
- Menstrual history and presence of oligomenorrhea

2. Laboratory Investigations

Venous blood samples were collected during the early follicular phase (days 2–5 of the menstrual cycle) and analyzed for:

- **Hormonal profile**: FSH, LH, SHBG, Estrogen, AMH, HCG
- **Metabolic parameters**: Fasting glucose, insulin levels, lipid profile
- **Insulin resistance**: Calculated using HOMA-IR index
- **Other tests**: TSH, Prolactin, 17-OH progesterone to exclude differential diagnoses

All hormonal assays were performed using standardized kits, primarily via **Chemiluminescence Immunoassay (CLIA)**.

3. Imaging

Pelvic ultrasound (transabdominal or transvaginal based on marital status and consent) was used to assess ovarian morphology. Polycystic ovarian morphology (PCOM) was defined as the presence of:

- ≥12 follicles measuring 2–9 mm in diameter
- and/or increased ovarian volume (>10 mL)

Ultrasounds were conducted by a single trained gynecologist using a high-resolution Doppler ultrasound system to ensure consistency.

4. Psychosocial Assessment

A structured, validated questionnaire was used to assess:

- Psychological General Well-Being (PGWB)
- Body image satisfaction
- Stress levels and coping mechanisms
- Awareness and perceptions about PCOS

In addition, **semi-structured interviews** and **participant observations** were conducted on a subset of five women (three with PCOS and two controls) to gain deeper qualitative insights into their lived experiences.

Statistical Analysis

Quantitative data were entered into **Microsoft Excel** and analyzed using **SPSS software version 25.0**. Statistical techniques used included:

- **Descriptive statistics**: Mean, standard deviation, percentages
- **Inferential statistics**: Z-tests and Chi-square tests to compare urban vs. rural differences
- **Confidence Interval**: 95% CI
- **P-value < 0.05** was considered statistically significant

Results

This study evaluated the prevalence, characteristics, and influencing factors of Polycystic Ovarian Syndrome (PCOS) in urban and rural populations of women aged 18–24 years in Mandi Gobindgarh, Punjab. A total of 200 participants were included—100 from urban areas and 100 from rural areas. The following summarizes the key results:

1. Prevalence of PCOS

- **Urban population**: The prevalence rate of PCOS was found to be **8.9%** (n = 45).
- **Rural population**: The prevalence rate was significantly lower at **1%** (n = 6).
- Using the **Rotterdam criteria**, the overall prevalence of PCOS among the sample was **22.5%**, while by **Androgen Excess Society (AES) criteria**, it was **10.7%**.

2. Awareness and Knowledge

- Awareness of PCOS was significantly higher in urban areas (90.24%) compared to rural areas (8.34%).
- Despite higher awareness, urban participants demonstrated poorer lifestyle practices such as higher consumption of junk food and lower physical activity.

3. Clinical and Biochemical Characteristics

Urban PCOS Group

- **Mean BMI**: 26.5 ± 0.4 kg/m²
  - Obese: 18 women (40%)
  - Non-obese: 26 women (57.8%)
  - Lean: 1 woman (2.3%)
- **Common symptoms**:
  - Oligomenorrhea: 10.1%
  - Hirsutism: 62%
  - Recent weight gain, acne, and androgenic alopecia were also reported.

Rural PCOS Group

- **Mean BMI**: 21.5 ± 2.34 kg/m²
  - Obese: 1 woman (16.7%)
  - Non-obese: 2 women (33.4%)
  - Lean: 3 women (50%)
- **Symptoms**:
  - Oligomenorrhea and hirsutism present but less prevalent than urban cohort.

4. Influencing Lifestyle Factors

- **Physical Activity**:
  - Urban: 50% engaged in some physical activity (mostly yoga or walking).
  - Rural: 25% walked >3 km daily, considered consistent physical activity.
  - None of the physically active rural women were diagnosed with PCOS.

- **Dietary Habits**:
  - Urban: 34.26% consumed junk food daily.
  - Rural: Only 15.9% reported consumption of unhealthy foods.
  - Balanced diet was reported by 63.6% of rural participants vs. 6.97% in urban areas.
- **Stress**:
  - Urban PCOS population: 6% reported stress as a contributing factor.
  - Rural PCOS population: 1% reported stress.

Hormonal and Ultrasound Findings

Parameter	Urban (n=50)	Rural (n=50)	P-Value
Hirsutism	62%	24%	< 0.05
Raised Serum Testosterone	44%	40%	0.862
Raised Serum Insulin	44%	40%	0.783
Polycystic Ovaries on USG	76%	74%	0.871

Conclusion

The present study provides significant insights into the prevalence, clinical characteristics, and psychosocial implications of polycystic ovarian syndrome (PCOS) among women in urban and rural areas of Mandi Gobindgarh, Punjab. The findings highlight PCOS as a multifaceted health issue that is not only medical and metabolic in nature but also deeply embedded in lifestyle, psychosocial factors, and socio-environmental conditions.

The prevalence of PCOS was found to be substantially higher in urban areas compared to rural regions, indicating the growing influence of urbanization and lifestyle transitions. Contributing factors in urban populations include poor dietary habits, increased consumption of junk food, sedentary behavior, higher levels of stress, and reduced physical activity. Although awareness about PCOS was significantly higher among urban women, there exists a critical gap in translating knowledge into preventive or corrective health behaviors.

The results also show a strong association between obesity and PCOS, with urban PCOS participants being significantly more overweight or obese than their rural counterparts. Hormonal disturbances, such as elevated LH, insulin resistance, and features of hyperandrogenism (especially hirsutism), were common across both populations but more pronounced in urban settings.

Psychosocial aspects—often overlooked—were revealed to be crucial in understanding the overall burden of PCOS. Body image dissatisfaction, emotional distress, anxiety, and lack of family or social support emerged as additional challenges for women living with PCOS, especially in nuclear family setups in urban areas.

The study emphasizes the importance of early diagnosis and intervention, especially during adolescence when PCOS symptoms begin to manifest. It further advocates for the use of culturally appropriate diagnostic tools, such as Asian-specific BMI and waist circumference cut-offs, to better identify at-risk populations and prevent underdiagnosis.

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