International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

A Study on the Prevalence, Risk Factors and Awareness of Polycystic Ovarian Syndrome (PCOS) among Female Teachers at an Urban School in Hyderabad, India

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Abstract

Background: Polycystic Ovarian Syndrome (PCOS) is a hormonal disorder increasingly common among Indian urban working women, driven by lifestyle changes, stress, and diet. Despite its high prevalence and serious health consequences, awareness remains low. This study examines the prevalence, risk factors, and awareness of PCOS among female teachers at an urban school—a group potentially at higher risk due to job-related stress and irregular routines.

Method: A cross-sectional study was conducted among 150 female teachers aged 25–45 using validated questionnaires and interviews to gather data on health, lifestyle, symptoms, and PCOS awareness.

Results: About 12.7% had a confirmed PCOS diagnosis, while another 14% showed symptoms without diagnosis. Key risk factors included family history, inactivity, obesity, stress, and unhealthy diets. While 77.2% had heard of PCOS, detailed understanding was limited. Nearly half reported low physical activity, and over 75% regularly consumed processed foods.

Conclusion: These findings highlight the need for institutional health interventions, including screenings, wellness programs, and awareness efforts. Empowering educators with PCOS knowledge can enhance their health and student awareness, benefiting wider public health.

Keywords: Awareness, Prevalence, Factors, Teachers, Polycystic Ovarian Syndrome (PCOS)

Introduction

Polycystic Ovarian Syndrome (PCOS) is a common hormonal disorder in women of reproductive age, marked by irregular ovulation, hyperandrogenism, and polycystic ovaries—diagnosed when two of these three Rotterdam criteria are met **[4]**. It affects not just reproductive health but also has long-term metabolic and psychological effects. Global prevalence ranges from 5% to 20%, with Indian urban women showing increasing susceptibility due to sedentary lifestyles, high-calorie diets, stress, and irregular sleep **[3, 27, 28]**. Alarming estimates suggest up to 22.5% of Indian women may be affected **[3]**, particularly in cities where lifestyle risk factors are more common **[29]**.

Despite its prevalence, PCOS is often underdiagnosed, as women may dismiss symptoms like irregular periods or weight gain and avoid seeking help due to stigma and poor awareness, even among healthcare providers **[5, 23]**. If untreated, PCOS can lead to serious conditions such as infertility, diabetes,

metabolic syndrome, cardiovascular disease, and mental health disorders including depression and anxiety **[10, 30, 31]**.

Therefore, early diagnosis, increased public awareness, and lifestyle interventions are essential. Public health efforts should prioritize education, routine screening in schools and workplaces, and better access to specialist care.

Rationale for the Study

Female teachers in urban private schools face unique lifestyle stressors due to balancing demanding professional and domestic responsibilities, often resulting in chronic stress, irregular routines, poor diet, and limited physical activity—all risk factors for PCOS **[3, 6]**. Chronic stress elevates cortisol levels, disrupting hormonal balance and contributing to PCOS **[24]**. Additionally, sedentary work and time-constrained dietary habits can lead to obesity and insulin resistance, central to PCOS pathology **[43, 25]**.

The urban school, with a significant female teaching staff, offers an ideal cohort to assess PCOS prevalence and awareness in working women. Their educational background also positions them to disseminate knowledge effectively within school communities. Evaluating this group's health can support early PCOS detection, improve health literacy, and guide targeted interventions for better wellbeing and productivity.

This study addresses a gap in localized PCOS data among professional women and underscores the need for regular screenings and reproductive health education in Indian urban schools, where lifestyle shifts often outpace health awareness and access **[14, 26]**.

Significance of the Study

This study is significant for its public health relevance, highlighting the need for early PCOS detection and education among teachers. It promotes schools as centers for women's health initiatives and supports the development of institutional health policies and awareness programs.

Objectives of the Study

This study aims to understand the prevalence, contributing factors, and awareness of Polycystic Ovarian Syndrome (PCOS) among female teachers at an urban school—an occupational group balancing professional and domestic duties, making them prone to PCOS-related stressors.

1. **Determine PCOS Prevalence:** Assessing how widespread PCOS is among teachers helps highlight the health burden in this profession and justifies the need for institutional health support.
2. **Identify Predisposing Factors:** The study investigates genetic predisposition, lifestyle habits, occupational stress, BMI, and diet—key contributors to PCOS among urban female educators.
3. **Evaluate Awareness Levels:** Teachers' understanding of PCOS symptoms, complications, and management strategies are assessed to identify knowledge gaps for targeted education.
4. **Recommend School-Based Interventions:** Based on findings, the study proposes health workshops, screenings, nutrition counseling, and wellness programs within schools to address PCOS.

Overall Goal

The research highlights how PCOS affects urban, educated, working women and positions schools as vital platforms for promoting women's reproductive health through tailored interventions and policy actions.

Materials and Methods

Study Design

A cross-sectional descriptive research design was used to assess the prevalence, risk factors, and awareness of Polycystic Ovarian Syndrome (PCOS) among a defined population at a single point in time. This design was ideal for capturing diverse symptoms and risk profiles, enabling efficient data collection through structured questionnaires without requiring long-term follow-up.

Study Population

The study population included female teaching staff of an urban school, chosen for its accessibility, administrative support, and diverse female workforce. Women aged 25–45 were targeted, as PCOS mainly affects women of reproductive age **[14]**. The participants, from varied academic and social backgrounds, represent urban educators balancing work and home responsibilities—factors linked to higher risk of endocrine and metabolic disorders like PCOS **[7]**.

Inclusion Criteria

The study included full-time female teaching staff aged 25–45 years who gave written informed consent and had no chronic illnesses that could confound PCOS symptoms.

Exclusion Criteria

Excluded were women on extended medical/maternity leave, under 25 or over 45, those with unrelated endocrine disorders (unless coexisting with PCOS), and non-teaching/part-time staff.

Sample Size

A total of 150 female teachers were selected using purposive sampling, covering ~75% of the eligible staff. This ensured strong representation and allowed subgroup analysis by age, BMI, stress, and awareness levels.

Ethical Considerations

Approval was obtained from school management. Participants received full study details and gave informed consent. Participation was voluntary, and confidentiality was ensured.

Data Collection & Measures

A structured questionnaire with four sections was used:

1. **Demographics** – age, marital status, teaching experience, weight, height, BMI (BMI = weight in kg / height in m^2)
2. **Medical/Menstrual History** – menstrual regularity, hormonal issues, acne, hirsutism, PCOS diagnosis
3. **Lifestyle Factors** – diet, physical activity, sleep, and stress
4. **PCOS Awareness** – a 10-item multiple-choice test, categorized as Low (0–3), Moderate (4–6), High (7–10)

The tool was pre-tested and revised. Data were collected via Google Forms.

Variables

- *Dependent:* PCOS diagnosis (Yes/No)
- *Independent:* Age, BMI, family history, activity, diet, sleep, stress
- *Moderating:* Awareness level (Low/Moderate/High)

Statistical Analysis

Data were analyzed using Microsoft Excel. Descriptive statistics and chi-square tests assessed prevalence and associations with lifestyle factors.

Results and Discussion

Prevalence of PCOS Among Teachers

The study surveyed **150 full-time female teachers** between the ages of 25 and 45 years, to evaluate the prevalence of Polycystic Ovarian Syndrome (PCOS) and its associated symptoms. The findings offer significant insights into how PCOS manifests within an educated, urban working population, with implications for workplace health strategies.

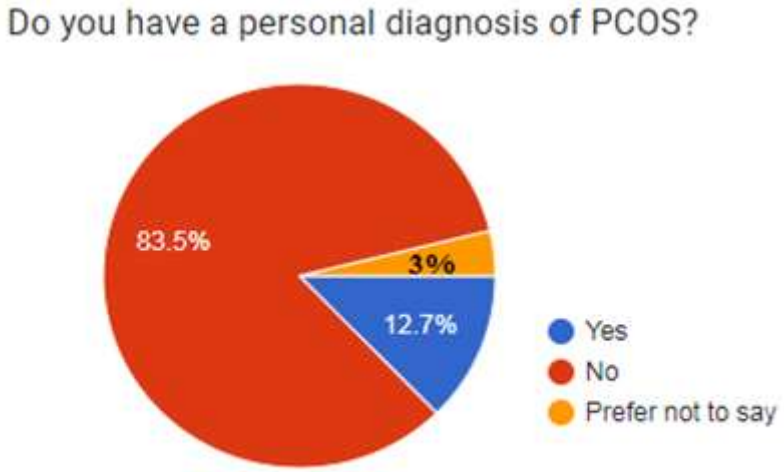

Figure 1: Survey on Prevelance of PCOS

Among the 150 respondents, 19 (12.7%) reported a formal PCOS diagnosis by a medical professional. All had a history of irregular menstruation, and 16 reported symptoms such as hirsutism, acne, or unexplained weight gain. This prevalence aligns with national urban estimates ranging from 9% to 22.5% **[3, 38]**. The 12.7% rate highlights a notable health concern in this occupational group, likely influenced by higher health literacy and access to care. However, underreporting or undiagnosed cases may mean the true prevalence is higher [see Figure 1].

An additional 3% (n=5) chose not to disclose their PCOS status, possibly due to stigma or uncertainty about their diagnosis **[44]**. This highlights the need for safe, stigma-free, supportive environments within schools and workplaces to address women's reproductive health concerns.

Irregular menstruation was reported by 15.8% of respondents (n=24), a symptom commonly associated with PCOS. Though not all cases indicate PCOS, the figure suggests potential undiagnosed cases. Factors like stress, shift work, poor diet, and sedentary lifestyle—common among teachers—may also contribute to such irregularities **[45]**. About 14% (n=21) reported two or more PCOS-related symptoms—irregular periods, acne, and excess hair—but had never sought medical advice.

Most diagnosed cases were among teachers aged 30–40, consistent with trends showing increased PCOS detection in this age group due to rising fertility concerns and related comorbidities like obesity and insulin resistance **[30]**. This life stage often brings added stress from work and family, potentially worsening hormonal imbalances **[46]**.

Symptom	Reported by Diagnosed Teachers	Reported by Others
Irregular periods	100%	37%
Acne	82%	41%
Weight gain	73%	49%
Hirsutism	64%	19%
Fatigue	55%	38%

Table 1: PCOS- like symptoms among the teachers.

This Table 1 demonstrates that many participants exhibit PCOS-like symptoms but are unaware of their possible implications.

Risk/Predisposing Factors

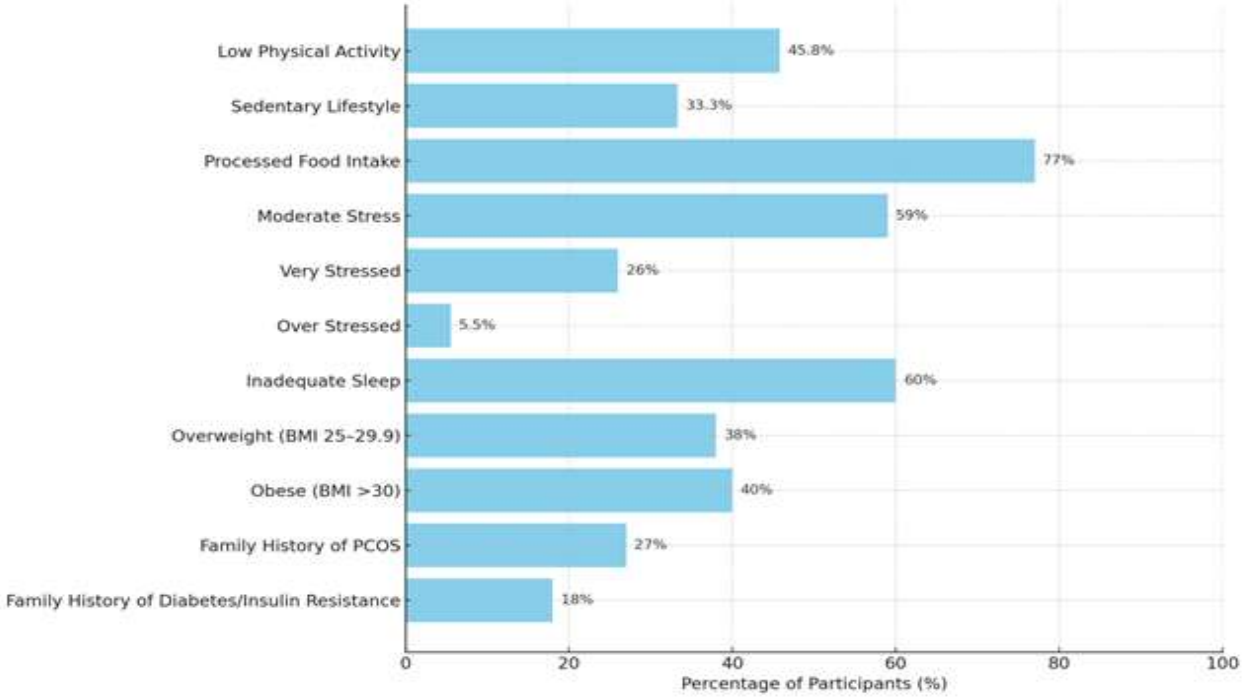

Figure 2: Predisposing/Risk Factors of PCOS Among the Female Teachers

The analysis of predisposing factors among the 150 female teaching staff, revealed a considerable presence of lifestyle and biological contributors that may significantly influence the risk and severity of Polycystic Ovarian Syndrome (PCOS) [Figure 2].

A major lifestyle factor identified was **physical inactivity**. About **45.8%** of participants reported low levels of physical activity, and **33.3%** acknowledged leading a sedentary lifestyle. This aligns with existing literature, where sedentary behavior is strongly linked to insulin resistance and hormonal

imbalance, both key contributors to PCOS pathogenesis **[46, 32]**. Studies among Indian women also confirm similar patterns; a study by Nidhi et al. in 2011 **[3]** found that over 50% of urban women with PCOS reported inadequate physical activity.

Dietary habits were another concerning factor, with **77%** of respondents frequently consuming processed or fast foods. Diets high in refined sugars, unhealthy fats, and additives can promote obesity and worsen insulin resistance—both major features of PCOS. These findings are comparable to studies conducted in urban India and globally, which show high processed food intake among women with PCOS **[17, 33]**.

Stress levels emerged as a notable contributor, with **59%** of participants experiencing moderate stress, **26%** high stress, and **5.5%** reporting extreme stress. Chronic psychological stress affects the hypothalamic-pituitary-adrenal (HPA) axis, contributing to disruptions in ovulatory function and exacerbation of PCOS symptoms [34]. A similar study by Gupta et al. in 2022 **[35]** among working women in India reported high stress levels in 65% of participants with PCOS.

Poor **sleep quality** was also common and **60%** of the teachers reported inadequate sleep. Several studies confirm that women with PCOS are more likely to experience sleep disturbances, including poor sleep quality and obstructive sleep apnea, which in turn worsen metabolic outcomes **[36, 37]**.

The **Body Mass Index (BMI)** distribution among participants showed that **22%** had a normal or underweight BMI (<25), **38%** were overweight (BMI 25–29.9), and **40%** were classified as obese (BMI >30). Obesity is a well-established aggravating factor for PCOS due to its impact on insulin resistance and hormonal imbalance **[15]**. This BMI profile is consistent with other Indian studies showing that up to 70% of women with PCOS are overweight or obese **[38]**.

Regarding **genetic and familial risk**, **27%** of respondents reported a direct family history of PCOS, while **18%** had relatives with Type 2 diabetes or insulin resistance. Among the 11 women diagnosed with PCOS, 7 indicated that a close female relative (mother, sister, or aunt) had similar symptoms or diagnosis. This supports the strong hereditary link in PCOS, which is polygenic and has familial clustering **[30]**. Similar familial trends were observed in a study by Teede et al. in 2010 **[6]**, where 30% of women with PCOS had a family history of the condition.

Awareness of PCOS Among Teachers

Awareness regarding Polycystic Ovarian Syndrome (PCOS) plays a pivotal role in ensuring timely diagnosis, reducing disease-related stigma, and promoting proactive management among women. In this study conducted, awareness levels were examined among 150 female teachers aged 25–45 years—a demographic that falls within the high-risk category for PCOS.

General Awareness and Sources

About 77.2% of participants had heard of PCOS, suggesting basic awareness. However, knowledge was often superficial. The main sources of information were the internet/social media (55%), friends/colleagues (28%), and medical professionals (17%), similar to trends observed by Shaikh et al.in 2019 **[41]**.

Awareness of Symptoms

Only 45% could correctly identify common PCOS symptoms like irregular menstruation, acne, hirsutism, obesity, and infertility. This limited understanding mirrors findings by Patel et al. in 2020

[39], highlighting a significant knowledge gap despite high awareness of the term.

Awareness of Long-Term Risks

Just 20% knew about PCOS-linked chronic risks such as type 2 diabetes, hypertension, cardiovascular disease, and endometrial cancer—findings consistent with Kumari et al. in 2021 **[40]**.

Awareness of Management

Awareness of management strategies was poor, with most associating PCOS only with hormonal or fertility treatments. Few recognized the importance of diet, exercise, stress management, or alternatives like yoga—similar to findings by Tiwari and Patel in 2022 **[42]** and Shaikh et al. in 2019 **[41]**.

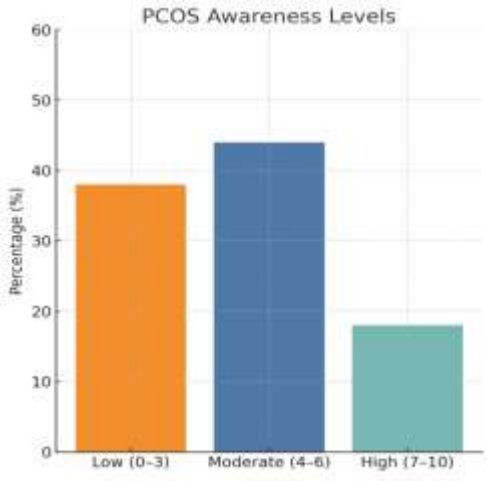

Figure 3: Awareness Scores

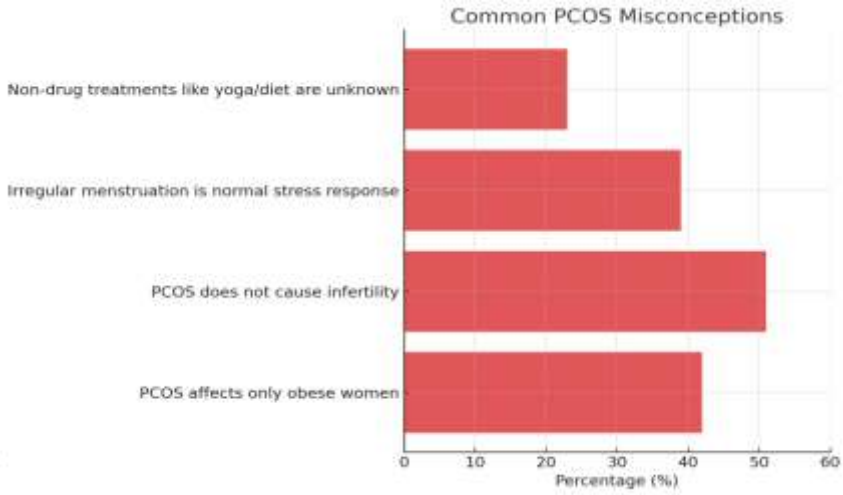

Figure 4: Misconceptions

Figure 3 shows only 18% of participants had a high level of PCOS awareness, while 38% had low awareness. Figure 4 highlights common misconceptions—for instance, over half did not know PCOS could cause infertility.

Role of Teachers in Spreading Awareness

Teachers play a key role in identifying early PCOS symptoms in adolescent girls, but without proper knowledge, they may miss or misinterpret signs. Educating teachers on PCOS supports both their health and student well-being.

This study of 150 female teachers highlights the significant prevalence, risk factors, and limited awareness of PCOS among urban working women balancing job and family duties.

Similar findings are reported in other Indian studies: Nidhi et al. in 2011 **[3]** noted a 22.5% prevalence among women aged 18–25 in South India, while Bhattacharya and Jha in 2018 **[2]** found a 24% rate among working women in Delhi. Both studies emphasized obesity, stress, and sedentary habits as key contributors, aligning with the present results.

Implications for School Health Policy

With nearly 1 in 3 female teachers potentially affected by PCOS, schools must prioritize women's health through:

- Regular health screenings
- Hormonal health and lifestyle workshops
- Stress management programs

- Work-life balance policies

As role models, informed teachers can promote early diagnosis and healthy habits among students, especially adolescent girls.

Limitations

The study's focus on a specific age group, exclusion of older women, and reliance on self-reported data without clinical diagnosis may limit accuracy and generalizability. Its cross-sectional design prevents causal conclusions, and the narrow geographic scope may introduce selection bias. Still, it offers important preliminary insights into PCOS awareness and prevalence.

Conclusion

Polycystic Ovarian Syndrome (PCOS) is a prevalent yet under recognized condition among women of reproductive age. In this study of 150 female teachers, 12.7% had a confirmed PCOS diagnosis, and another 14% exhibited symptoms without diagnosis—suggesting nearly one-third may be affected. Although 77.2% had heard of PCOS, only 45% understood its symptoms, and just 20% were aware of its long-term risks. Most relied on non-expert sources like the internet and peers, indicating a significant knowledge gap.

Identified risk factors included genetics, obesity, sedentary lifestyles, stress, and poor dietary habits. These findings highlight the need for systemic interventions in schools to promote awareness, early diagnosis, and healthy lifestyles.

As educators often influence students' health perceptions, empowering teachers with accurate information can improve not only their well-being but also that of the wider school community.

Recommendations

Address PCOS prevalence and awareness gaps among schoolteachers, schools should conduct annual health screenings, include reproductive health in staff wellness programs, and organize expert-led workshops. Wellness initiatives like yoga, healthy eating, and access to counselors are essential. Policy reforms should support flexible schedules, health leave, and curriculum integration. Future research should evaluate interventions, compare urban–rural trends, and study adolescent PCOS patterns.

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