**Radius: Journal of Science and Technology**
**Vol. 2, Issue 2, (2025) 252003 (7pp)**

# Assessment of Knowledge and Prevention of Complications among PCOS

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**Abstract**: Polycystic ovarian syndrome (PCOS) is one of the most common chronic conditions in the world, with significant burdens of potential long-term complications across multiple organ systems. Proper knowledge and preventative practices are essential to reducing complications and increasing the quality of life among females. To assess the level of knowledge and preventative practices of challenges of PCOS in adult females before and after an STP. A quasi-experimental, non-equivalent control group, was used to assess 30 adult females in a selected hospital in Jaipur. Data were used to collect demographic variables using a standardized questions survey, and knowledge and preventative practices were collected using a 16-item knowledge and prevention checklist. Adult females' knowledge average score was 6.8 before the test and post-test, the score was 12.4 after the STP, showing significant improvement in adult female knowledge of PCOS ($p<0.001$). The relationship between demographic factors and knowledge level revealed positive impacts on knowledge level (education and duration of PCOS). The STP was successful in increasing awareness of PCOS complications and preventative practices amongst PCOS girls.

**Keywords:** Probiotics, FMT, Gut dysbiosis, Hyperinsulinemia, Hyperandrogenism, Gut microbiota, PCOS, miRNA treatment

## Introduction:

Polycystic Ovary Syndrome (PCOS), also referred to clinically as hyperandrogenic anovulation (HA) or Stein-Leventhal syndrome, is one of the most prevalent disorders of the endocrine system impacting reproductive-aged women **[1]**. One of the many symptoms of this persistent and heterogeneous disease include menstrual dysfunction, infertility, hirsutism, acne, and obesity **[2]**. It is defined as having one ovary with an ovarian volume greater than 10 mL and having at least one ovary with an estimated ten small follicles that measure between 2–9 mm in diameter **[3]**. PCOS is typically diagnosed only when the patient is seeking help for infertility, hair loss, alopecia, acne or other adverse effects on quality of life **[4]**.

According to rigorously screened women using the National Institutes of Health (NIH) diagnostic criteria on PCOS, it is estimated that 4-10% of women of reproductive age will have PCOS worldwide **[1]**. The World Health Organization (WHO) estimated that in 2012 that 116 million women worldwide (3.4%) have PCOS **[5]**. The high prevalence necessitates an economic burden due to not only irregular ovulation and menstruation, but also due to infertility, hair loss, and metabolic disease, which are associated symptoms of PCOS and further contribute to the high economic burden of PCOS **[6]**. PCOS can appear at any age,

https://doi.org/10.5281/zenodo.17633068
**Received:** 30 October 2025 | **Revised:** 11 November 2025
**Accepted:** 16 November 2025 | **Published Online:** 17 November 2025

commencement with menarche, with the majority of cases being between 20 and 30 years of age **[7]**. At present, 1.55 million women of reproductive age are globally affected by PCOS, resulting in 0.43 million disability-adjusted life years (DALYs). In 2017, the age-standardized incidence of PCOS in women of reproductive age was 82.44 per 100,000 persons (as a slight increase of 1.45% from 2007) **[8]**. In the past, PCOS was thought to be limited to adult women, but more recent research suggests that it can represent a life-long condition that starts in pregnancy **[9]**. Although the precise etiology of this complex syndrome is uncertain, a combination of environmental and genetic factors is believed to be a root cause.

Hormonal dysregulation, chronic low-grade inflammation, insulin resistance, and hyperandrogenism are central to the pathophysiology of PCOS **[10]**, which interferes with folliculogenesis and increases risk for comorbidities such as type II diabetes and endometrial cancer. International guidelines define the three principal criteria for diagnosing PCOS as ovarian morphology, anovulation, and hyperandrogenism **[10]**. While the development, prevalence, and treatment of PCOS are likely affected by environmental factors, such as geography, dietary and nutritional factor, socio-economic status, and environmental contaminants **[11]**. The microbiome has been associated with PCOS in recent years, and is thought to be a contributory factor to the etiology of syndrome.

Environmental risk factors may result in dysbiosis of the gut microbiome, which may be a pathogenic factor in the development and progression of PCOS. Discrete microbiota are responsible for discrete pathogenic factors of PCOS and important pathways linking those associations in the development of various clinical symptoms of the disorder open the door to new treatments **[12]**. Prebiotics, probiotics, synbiotics, and fecal microbiota transplantation (FMTs) aid in managing the range of phenotypic variation associated with PCOS by promoting eubiosis and ameliorating the effects of altered microbiota. Women with PCOS may experience benefits from therapeutic treatments mediated by microbiota in their hormonal, inflammatory, and metabolic characteristics.

This article describes the development, incidence, and management of PCOS including prospective therapies like IL-22 and miRNA therapy. We also go over the significance of gut dysbiosis in the pathophysiology of PCOS and assess a number of microbiota-focused therapeutic strategies that may be useful in treating the condition.

Lim et al. **[13]** explained that Iran is a country in the Middle East PCOS is a hormonal condition that influences ladies of conceptive age. PCOS seems to have expanded among young adult females as of late because of unfortunate dietary patterns and weight. Therefore, the current review investigated the dietary patterns of overweight and corpulent young adult young ladies with PCOS. A purposive example methodology was utilized to enlist 33 members for this subjective review. Individual inside and out interviews, centre gathering conversations (FGDs), and field notes were utilized to accumulate data. This information was inspected utilizing customary subjective substance investigation procedures. Results: coming up next are the three principal types that were found: To start, there were three subcategories of maximum usage of undesirable food varieties: maximum usage of greasy and pungent food sources, maximum usage of unfortunate titbits, and intense usage of sugar-rich food varieties. Second, low utilization of dairy items, low utilization of fibre-rich suppers, and low utilization of meat, beans, fish, and shellfish were all sub-classes of unfortunate admission of

good food. Third, there were three sub-classifications of unacceptable conduct propensities: absence of consideration and enormous dinner utilization, unseemly wholesome and actual work designs, and skipping dinners and quitting junk food. This review can help to make the suitable mediations to change the dietary propensities, manage the manifestations and outcomes of PCOS, and upgrade the conceptive strength of these young ladies by offering a picture of their dietary patterns in overweight and fat juvenile young ladies with PCOS **[13]**.

Amasha and Heeba **[14]** explained that PCOS (polycystic ovarian disorder) is a common endocrinopathy with an assortment of side effects. Ladies' lives are impacted start at pubescence and can endure forever. Anovulatory feminine periods, barrenness, hirsutism, heftiness, and an expanded gamble of diabetes, hypertension, lipid irregularities, and metabolic disorder are normal in ladies. PCOS is a heterogeneous condition with an exclusionary analysis. Feminine abnormalities, ultrasound discoveries of variant ovarian size and shape, and clinical or research facility signs of hyperandrogenism are normal in ladies who are impacted. The current comprehension of PCOS, related metabolic anomalies, and finding in conceptive matured ladies and youths is audited in this part.

**Objectives**

1. To evaluate adult females' pre-Structured Teaching Programme (STP) knowledge and prevention of problems.
2. To evaluate PCOS patients' complication prevention and knowledge following the STP.
3. To assess how well the STP works.
4. To determine the relationship between certain demographic variables and the prevention of problems.

**Materials & Methods**

- **Research Methodology**: Quantitative methodology.
- **Design:** Non-equivalent control group, quasi-experimental design.
- **Setting:** A selected rural area in Jaipur.
- **Population:** Adult females diagnosed with PCOS.
- **Sample Size:** 30 Adult females
- **Purposive sampling** is the method used for sampling.
- **Instrument Used:** Two-part structured questionnaire
  - **Part I:** Information on sociodemography
  - **Part II** (16 items; maximum score = 16) covers knowledge and prevention of PCOS problems. Interpretation of Scores: 0–5 = Poor, 6–10 = Moderate, 11–16 = Good. Method of **Data Gathering:** Group for Experimentation: O1 X O2, Group in Control: O1 O2
- **Data Analysis:** Descriptive and inferential statistics (mean, SD, paired t-test, chi-square test).

**Results**

The results of the study Assessment of Knowledge and Prevention of Complications among PCOS Patients, which involved thirty PCOS patients in a particular rural Jaipur region, are

presented in this section. To assess the efficacy of the Structured Teaching Programme (STP), data were examined using descriptive and inferential statistics.

**Table 1:** Distribution of Frequency and Percentage of Demographic Factors (n = 30)

| S. No. | Demographic Variables | Category | Frequency (f) | Percentage (%) |
|---|---|---|---|---|
| 1 | **Age (years)** | 17–20 | 3 | 10 |
| | | 21–25 | 7 | 23.3 |
| | | 26–30 | 12 | 40 |
| | | 31 & above | 8 | 26.7 |
| 2 | **Marital Status** | Single | 5 | 16.7 |
| | | Married | 20 | 66.7 |
| | | Widowed/Divorced | 5 | 16.6 |
| 3 | **Education** | Absence of formal schooling | 4 | 13.3 |
| | | Primary | 8 | 26.7 |
| | | Secondary | 10 | 33.3 |
| | | Graduate & above | 8 | 26.7 |
| 4 | **Occupation** | Unemployed | 6 | 20 |
| | | Daily wage worker | 7 | 23.3 |
| | | Private job | 8 | 26.7 |
| | | Government employee | 4 | 13.3 |
| | | Self-employed | 5 | 16.7 |
| 5 | **Residence** | Rural | 17 | 56.7 |
| | | Urban | 13 | 43.3 |
| 6 | **Family History of PCOS** | Yes | 19 | 63.3 |
| | | No | 11 | 36.7 |
| 7 | **Duration of PCOS** | < 1 year | 4 | 13.3 |
| | | 1–5 years | 14 | 46.7 |
| | | 6–10 years | 8 | 26.7 |
| | | > 10 years | 4 | 13.3 |
| 8 | **Current Treatment** | Oral medication | 12 | 40 |
| | | HORMONAL TREATMENT | 8 | 26.7 |
| | | Both | 6 | 20 |
| | | Diet & lifestyle only | 4 | 13.3 |

**Interpretation:**

The majority of participants were aged 26–30 years (40%), male (60%), married (66.7%), and residing in rural areas (56.7%). Most had PCOS with 1–5 years duration (46.7%) and family history of PCOS (63.3%).

**Table 2:** Distribution of Knowledge Levels before and after Structured Teaching Programme (n = 30)

| Knowledge Level | Pre-Test | | Post-Test | |
|---|---|---|---|---|
| | Frequency (f) | Percentage (%) | Frequency (f) | Percentage (%) |
| Poor (0–5) | 10 | 33.3 | 0 | 0 |
| Moderate (6–10) | 15 | 50 | 8 | 26.7 |
| Good (11–16) | 5 | 16.7 | 22 | 73.3 |
| **Total** | **30** | **100** | **30** | **100** |

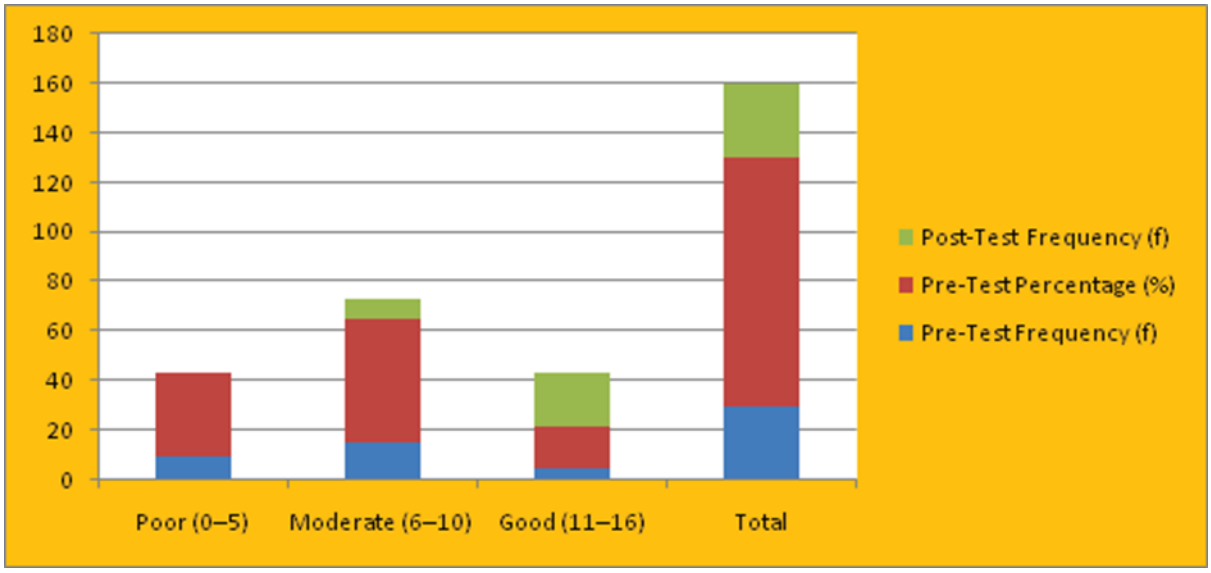


**Figure 1:** Knowledge Levels before and after Structured Teaching Programme (n = 30)

**Interpretation:**
Only 16.7% of adult females had strong knowledge prior to the STP, while 33.3% had low understanding. 73.3% of participants attained good knowledge following the STP, indicating a significant increase in awareness and preventive behaviors.

**Table 3:** Comparison of Pre-test and Post-test Knowledge Scores (n = 30)

| Variable | Mean | SD | Mean Difference | t-value | p-value |
|---|---|---|---|---|---|
| **Pre-Test** | 6.80 | 1.90 | - | - | - |
| **Post-Test** | 12.40 | 1.80 | 5.60 | 10.21 | <0.001* |

**Interpretation:** With a mean difference of 5.6, the mean knowledge score rose from 6.8 to 12.4 following the STP. A statistically significant improvement is indicated by the t-value of 10.21 and $p < 0.001$. The Structured Teaching Program was therefore quite effective.

**Table 4:** Association between Knowledge Scores and Selected Demographic Variables (n = 30)

| Demographic Variable | Chi - Square ($\chi^2$) | df | p-value | Significance |
|---|---|---|---|---|
| **Age** | 2.11 | 3 | 0.14 | NS |
| **Gender** | 0.82 | 1 | 0.36 | NS |
| **Education** | 8.22 | 3 | 0.01 | S |

| | | | | |
|---|---|---|---|---|
| **Duration of PCOS** | 6.54 | 3 | 0.03 | S |
| **Family History** | 1.98 | 1 | 0.16 | NS |

**Interpretation:** Both education level and duration of experience with PCOS were significantly associated with the participants' levels of knowledge, suggesting that higher education and longer disease experience contribute to better awareness and prevention practices.

## Discussion

In this study, many of the adult females had not demonstrated a good knowledge level related to the disease or its complications prior to participating in the teaching programme. The post-test scores showed significant improvement in the participants' knowledge level following the structured teaching programme. The knowledge improvements observed in this study lend support to the implementation of structured teaching programmes to improve education for self-care and prevention of complications. Similar findings were reported by Sharma et al. (2022) and Singh & Patel (2021) as health education strategies in PCOS management.

## Conclusion

Overall, the findings of this study show that the Structured Teaching Programme significantly improved the diabetic patient's knowledge and knowledge level of prevention of the disease complications. As a follow-up to the study, continued education needs to occur to maintain the knowledge improvements and improve the overall quality of health care for patients with PCOS.

## Recommendations

1. Regular PCOS education sessions should be incorporated into rural area.
2. Similar studies can be conducted on larger samples to validate the findings.
3. Awareness campaigns and community-based health education programmes should be initiated.
4. Nurses should play an active role in educating patients and families about PCOS management.
5. Periodic assessments should be carried out to evaluate patient adherence to preventive practices.
6. Training modules for healthcare workers should include updated guidelines on PCOS complication prevention.

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