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**Prevalence and Causal factors of Primary vs Secondary Female  
Infertility: A Comparative Study Analyzing Patient Profiles**

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**Abstract: Background:** Infertility is a significant reproductive health concern with varying etiologies in primary and secondary infertility. Understanding differences in patient profiles aids targeted management. **Objective:** To compare prevalence, demographic characteristics, and etiological factors between primary and secondary female infertility. **Methods:** A retrospective comparative study was conducted over 2 years (June 2022–May 2024) including 60 women (30 primary infertility, 30 secondary infertility). Data regarding age, BMI, duration of infertility, and etiology were analyzed. Statistical analysis was performed using chi-square test with  $p < 0.05$  considered significant. **Results:** Primary infertility constituted 50% and secondary infertility 50% of cases. PCOS was the most common cause in primary infertility (40%), while tubal factors (36.7%) dominated in secondary infertility. Significant differences were observed in etiology distribution ( $p < 0.05$ ). **Conclusion:** Etiological patterns differ significantly between primary and secondary infertility, emphasizing the need for individualized diagnostic approaches.

**Keywords:** Primary infertility, Secondary infertility, PCOS, Tubal factor, Etiology

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### Introduction

Infertility affects approximately 10–15% of couples globally<sup>1</sup>. It is classified into:

- Primary infertility: Failure to conceive without prior pregnancy
- Secondary infertility: Failure to conceive following a previous pregnancy<sup>2</sup>

Etiological factors include ovulatory dysfunction, tubal pathology, uterine abnormalities, and unexplained causes. Regional and demographic variations influence these patterns.<sup>3</sup>

This study aims to compare prevalence and etiological factors between primary and secondary infertility patients.



## Materials and Methods

### Study Design

Retrospective comparative observational study.

### Study Setting

Infertility clinic, Department of Obstetrics and Gynecology, ABVIMS & Dr.RML Hospital, New Delhi.

### Study Duration

June 2022 – May 2024 (2 years)

### Sample Size

Total = 60 patients

- Primary infertility: 30
- Secondary infertility: 30

### Inclusion Criteria

- Women aged 20–40 years
- Diagnosed with infertility (>1 year)
- Complete clinical records available

### Exclusion Criteria

- Male factor infertility
- Incomplete records
- Known genetic disorders

### Data Collected

- Age
- BMI
- Duration of infertility
- Menstrual history
- Etiology:
  - Ovulatory (PCOS)
  - Tubal
  - Uterine
  - Endometriosis
  - Unexplained

### Statistical Analysis

- Software: SPSS / Excel
- Tests: Chi-square test
- Significance:  $p < 0.05$

## Results

**Table 1: Distribution of Infertility Type**

Type of Infertility	Number (n=60)	Percentage (%)
Primary	30	50%
Secondary	30	50%

**Table 2: Age Distribution**

Age Group (years)	Primary (n=30)	Secondary (n=30)	p-value
20-25	8	5	
26-30	12	10	
31-35	7	9	
>35	3	6	0.28 (NS)

**Table 3: BMI Distribution**

BMI Category	Primary	Secondary	p-value
Normal	10	8	
Overweight	12	10	
Obese	8	12	0.32 (NS)

**Table 4: Etiological Factors**

Etiology	Primary (n=30)	Secondary (n=30)	p-value
PCOS	12 (40%)	6 (20%)	
Tubal factor	5 (16.7%)	11 (36.7%)	
Uterine	4 (13.3%)	5 (16.7%)	
Endometriosis	3 (10%)	4 (13.3%)	
Unexplained	6 (20%)	4 (13.3%)	0.04 (Significant)



## Key Findings

- PCOS significantly higher in primary infertility
- Tubal causes more common in secondary infertility
- Overall etiological distribution statistically significant

## Discussion

This study demonstrates distinct etiological patterns between primary and secondary infertility. PCOS predominance in primary infertility aligns with anovulatory mechanisms, while higher tubal pathology in secondary infertility may be linked to prior infections or obstetric events.<sup>4,5</sup> WHO and regional Indian datasets reported similar findings in studies. Early identification of etiology can improve treatment outcomes.<sup>6,7</sup>

## Conclusion

- Primary infertility is mainly associated with ovulatory dysfunction
- Secondary infertility is more commonly linked to tubal factors
- Tailored evaluation strategies are essential for effective management

## Ethical Clearance Statement

This study was conducted after obtaining approval from the Institutional Ethics Committee. As this was a retrospective study using anonymized patient records, informed consent was waived. Confidentiality of patient data was strictly maintained in accordance with ethical guidelines.

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