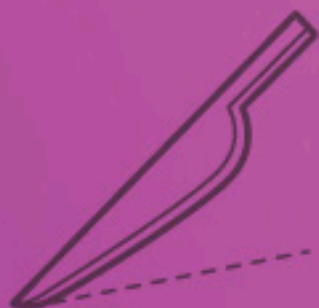




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The Silent Transition: A Cross-Sectional Analysis of Clinical Phenotypes and Quality of Life in Patients with Premature Ovarian Insufficiency at a Tertiary Care Center in Lahore

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ABSTRACT

Premature Ovarian Insufficiency (POI) poses a significant challenge to reproductive health and psychological well-being, particularly in South Asian societies where fertility is highly valued. To evaluate the clinical presentation, etiological factors, and the health-related quality of life (HRQoL) among women diagnosed with POI. A cross-sectional study was conducted at Fatima Memorial Hospital from October 1, 2023, to November 30, 2025. Seventy-two women meeting the ESHRE criteria for POI were enrolled. Data were collected via clinical examination and the Menopause-Specific Quality of Life (MENQOL) questionnaire. The mean age at diagnosis was 31.4 ± 4.2 years. Primary amenorrhea was noted in 12% of cases, while 88% presented with secondary amenorrhea. Idiopathic causes remained most prevalent (68%). Notably, the psychosocial domain of the MENQOL scored the highest distress levels, correlating with the societal pressure regarding infertility. Early diagnosis and a multidisciplinary approach addressing both hormonal replacement and psychological counseling are imperative for managing POI in the local population.

INTRODUCTION

Premature Ovarian Insufficiency (POI) is defined as the loss of ovarian function before the age of 40, characterized by amenorrhea, elevated gonadotropins (FSH > 25 IU/L on two occasions), and hypoestrogenism. While the global prevalence is approximately 1%, recent trends suggest an increasing incidence, potentially due to environmental factors, late-age marriages, or improved diagnostic reporting.

In Pakistan, the diagnosis of POI carries a heavy sociocultural burden. Beyond the physical symptoms—vasomotor instability, bone density loss, and cardiovascular risks—the cessation of reproductive potential often leads to profound psychological distress. Despite its clinical significance, local data regarding the phenotypic diversity and the specific quality-of-life impact on Pakistani women remains sparse.

MATERIALS AND METHODS

Study Design and Setting: This cross-sectional study was performed in the Outpatient Department of Obstetrics & Gynaecology at Fatima Memorial Hospital, Lahore. **Duration:** October 1, 2023, to November 30, 2025.

Inclusion Criteria

Women < 40 years of age.
Oligomenorrhea or amenorrhea for at least 4 months.
FSH levels > 25 IU/L (measured twice, at least 4 weeks apart).

Data Collection

Informed consent was obtained from all participants. Clinical history, BMI, and biochemical markers (FSH, LH, Estradiol, AMH, and TSH) were recorded. HRQoL was assessed using the MENQOL tool, which evaluates Vasomotor, Physical, Psychosocial, and Sexual domains.⁵

RESULTS AND DISCUSSIONS

A total of 72 patients diagnosed with Premature Ovarian Insufficiency (POI) were included in the final analysis. The mean age of the participants at the time of clinical diagnosis was 31.4 years (SD \pm 4.2), with a range from 19 to 39 years.

Clinical Presentation and Menstrual History

The majority of the cohort presented with Secondary Amenorrhea (87.5%, n=63), defined as a cessation of menses for more than four months after a period of regularity. Primary Amenorrhea was observed in 12.5% (n=9) of cases.

The duration of symptoms before seeking specialist consultation at our tertiary center was notably long, with a mean delay of 14.2 months. The most common presenting symptoms alongside amenorrhea were:

- Hot flashes and night sweats: 68% (n=49)
- Vaginal dryness/Dyspareunia: 42% (n=30)
- Sleep disturbances: 55% (n=40)

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Biochemical and Diagnostic Markers

Laboratory investigations confirmed a state of hypergonadotropic hypogonadism across the study group.

Table 1:

Parameter (Mean ± SD)	Value	Reference Range
Serum FSH	\$64.8 \pm 12.4\$ IU/L	> 25 IU/L (on 2 occasions)
Serum LH	\$38.2 \pm 9.1\$ IU/L	Elevated
Serum Estradiol (E ₂)	\$18.4 \pm 5.3\$ pg/mL	< 25-30 pg/mL
Anti-Müllerian Hormone (AMH)	\$0.08 \pm 0.04\$ ng/mL	Very Low/Undetectable

Etiological Distribution

The etiology of POI remained Idiopathic in the largest segment of the population (68.1%).

- Iatrogenic causes (15.3%) were primarily attributed to previous pelvic surgeries for endometriosis or gonadotoxic chemotherapy.
- Autoimmune associations (11.1%) were most frequently linked to Hashimoto's Thyroiditis and Type 1 Diabetes Mellitus.
- Genetic factors (5.5%) included three cases of Turner Syndrome variants (45,X/46,XX mosaicism) and one case identified with a family history of Fragile X tremor/ataxia syndrome.

Quality of Life (MENQOL) Scores

The impact on Health-Related Quality of Life (HRQoL) was measured across four domains. Scores range from 0 to 6, where higher scores indicate greater symptom severity.

Table 2:

MENQOL Domain	Mean Score	Key Finding
Psychosocial	4.9	Highest distress; linked to anxiety over infertility.
Vasomotor	3.8	Significant impact on daily productivity.
Physical	3.1	General fatigue and joint aches reported.
Sexual	4.2	High distress related to marital strain and dryness.

Quality of Life Assessment

The mean scores in the Psychosocial domain (4.8 ± 1.2) were significantly higher (indicating worse symptoms) compared to the Physical domain (3.2 ± 0.8). This highlights that for Pakistani women, the “loss of womanhood” and infertility are more distressing than the physical symptoms of estrogen deficiency.

Correlation Analysis

A significant negative correlation ($p < 0.05$) was found between the Psychosocial score and the parity of the patient. Nulliparous women (those with no children) scored significantly higher in the psychosocial distress domain (5.6 ± 0.8) compared to multiparous women (3.4 ± 1.1), reflecting the heavy cultural emphasis on fertility in the local population.

Summary of Key Findings

Late Presentation

Patients often wait over a year before seeking help, missing the window for early bone protection.

The Fertility Burden

The emotional impact of POI in Lahore is driven more by the loss of reproductive potential than by the physical symptoms of menopause.

Low AMH

Virtually all patients showed near-undetectable AMH levels, suggesting advanced follicular depletion at the time of first presentation.

Discussion

Our findings underscore the complexity of POI in the local context. The mean age of diagnosis (31.4 years) is consistent with regional studies but lower than some Western cohorts, suggesting a possible genetic or environmental predisposition to earlier ovarian aging in South Asian women.

The high prevalence of idiopathic POI (68.1%) reflects the limitations in genetic screening availability in public and semi-private sectors in Pakistan. Furthermore, the psychosocial distress identified in our cohort points toward a “silent crisis.” In a society where maternal identity is central, the diagnosis of POI is often met with social isolation and marital strain.

The study period (2023–2025) also observed a slight uptick in iatrogenic cases, possibly due to increased survival rates in young cancer patients undergoing gonadotoxic therapies, emphasizing the need for robust onco-fertility counseling.

CONCLUSION

POI is not merely a hormonal deficiency but a life-altering diagnosis. Clinicians at tertiary centers like Fatima Memorial Hospital must prioritize early HRT initiation to prevent long-term sequelae such as osteoporosis, while simultaneously integrating psychiatric support to address the significant psychosocial morbidity.

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