FREQUENCY OF POLYCYSTIC OVARIAN SYNDROME (PCOS) IN FEMALES PRESENTING WITH INFERTILITY

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ABSTRACT
Young women with oligomenorrhea, hirsutism, or hyperandrogenic issues like acne or hirsutism are frequently diagnosed with PCOS. Despite being linked to obesity, the syndrome is as commonly observed in females with normal body conformation. As there are ethnic disparities in the biochemical and clinical characteristics of PCOS, estimates of the pervasiveness of the condition depend on the community being studied.
Objectives: To determine the frequency of polycystic ovarian syndrome (PCOS) in females presenting with primary infertility.
Study Design: Descriptive, Cross Sectional study.
Place and duration: Department of Obstetrics & Gynecology, Jinnah Postgraduate Medical Centre, Karachi Pakistan
Materials & Methods: A total of 88 patients with primary infertility, 18 to 35 years of age were included. Patients with hyperparathyroidism, long term steroid treatment and heart failure were excluded. The researcher collected data on a prescribed questionnaire regarding demographic variables like age, name, duration of marriage and gender. At the same time patients were assessed for outcome variable i-e PCOS.
Results: The patients mean age was 26.39 ± 3.33 years with 18 to 35 years of age range. Maximum of the patients 51 (57.95%) were 18-25 years old. Mean duration of infertility was 4.49 ± 2.21 years. Frequency of polycystic ovarian syndrome (PCOS) in females presenting with primary infertility was found in 19 (21.59%) patients.
Conclusion: This study concluded that polycystic ovarian syndrome (PCOS) frequency in females presenting with primary infertility is quite high.

Keywords: infertility, polycystic ovarian syndrome, obesity.

INTRODUCTION

The National Survey of Family Growth (NSFG) defines infertility as the inability to conceive following at least 12 months of uninterrupted unprotected sexual contact[1-2]. The significant number of women seeking preliminary infertility assessments and infertility treatments is evidence that infertility continues to be a serious public health concern worldwide[3-4].

Men and women are nearly equally affected by the reproductive system disorder known as infertility. Pakistan is the popular in the world with about 2% of population growth rate with increased prevalence of infertility (21.9%); primary secondary infertility rates are 3.6% and 18.5%[5-6].

Infertility caused by female factors can be categorized into numerous groups, including cervical or uterine, ovarian, tubal, and other[7-8]. The number of researches has been done, despite the fact that stress and discomfort (such as anxiety or depression) have been linked to lower conception rates while using assisted reproductive technologies (ART). Female infertility is a complex problem that can be brought on by a number of illnesses, such as pelvic inflammatory disease, premature ovarian failure, uterine fibroids, Polycystic Ovary Syndrome (PCOS) and endometriosis. According to one study, 17.6% of infertile women had PCOS[9-10].

The common endocrine disease among reproductive age females is PCOS. Estimates of its frequency around the world range from 2.2% to 26%. The PCOS females are more probable to develop metabolic syndrome (MBS), which is two times more common in them than in the general population[11-12]. The major traits of MBS are insulin resistance, obesity, poor glucose metabolism, dyslipidemia, and hypertension. Additionally, it has been established that the pathophysiology of PCOS and MBS is significantly influenced by insulin resistance[13]. A higher risk of metabolic abnormalities, including as hyperinsulinism and insulin resistance, dyslipidemia, type 2 diabetes, endometrial cancer and cardiovascular disease is thought to be connected with PCOS[14]. Young women with oligomenorrhea, hirsutism, or hyperandrogenic issues like acne or hirsutism are frequently diagnosed with PCOS. Despite being linked to obesity, the syndrome is as commonly observed in females with normal body weight. As there are ethnic disparities in the biochemical and clinical characteristics of PCOS, estimates of the pervasiveness of the condition depend on the community being studied[15].

MATERIALS & METHODS

This descriptive, cross-sectional study held at the Jinnah Postgraduate Medical Centre in Karachi's department of obstetrics and gynecology from January 2021 to December 2021. Epi Info 7 calculates a sample size of 88 based on the prevalence of PCOS in females with infertility as 17.6%4, with a 95% confidence interval and an 8% of marginal error. Consecutive sampling with no probability was employed.

Inclusion Criteria:
● 18-35 years of age
● Diagnosis of primary infertility as per operational definition.
● Female gender.

Exclusion Criteria:
● Patients with various co-morbidities, such as heart failure (defined by echo as EF>25) or renal illness (defined as serum Cr > 3 mg/dl)
● Thosewith endocrine diseases, such as hyperparathyroidism (defined as blood PTH levels > 10 ng/dl), are excluded from the study.
● Any patient receiving long-term steroid medication for not more than three months, as indicated by a doctor's prescription slip.

After the CPSP approved the synopsis, the hospital's ethical review committee granted clearance for the data collection, and the study was carried out in the obstetrics and gynecology department (Ward-9) at Jinnah Postgraduate Medical Centre in Karachi. after obtaining patients' fully informed

written consent. Following the fulfilment of the inclusion/exclusion requirements, diagnosed cases of primary infertility were enrolled in the study. The researcher gathered information on demographic factors such name, age, gender, and length of marriage using a templated questionnaire. Patients were evaluated for the outcome variable, or PCOS, at the same time. The researcher herself entered the results on the Performa.

Data were analysed using SPSS software version 21 on a computer. Age and length of marriage were determined using the mean and SD. Age group, length of marriage, obesity, HTN, DM, and the outcome variable, PCOS, were all calculated in terms of frequency and percentages. Age, length of marriage, obesity, HTN, and DM were effect modifiers that were stratified to examine how they affected the outcome variable. chi-square test is used, with a p value of 0.05 considered significant.
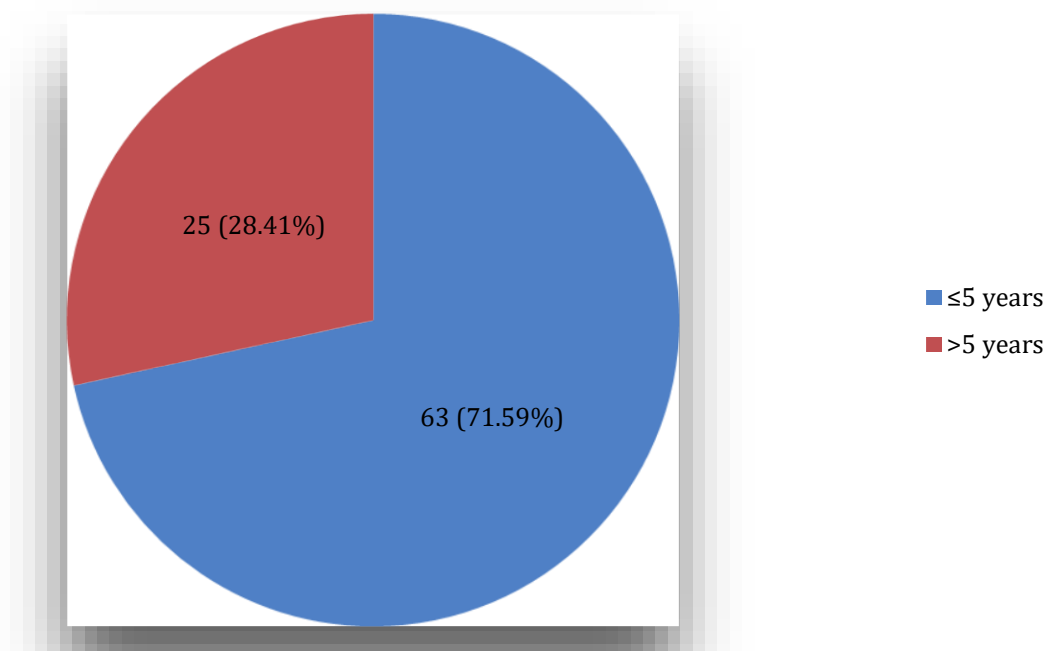
RESULTS

The patients mean age was 26.39 ± 3.33 years with 18 to 35 years of age range. Maximum of the patients 51 (57.95%) were 18-25 years old as shown in Table I.
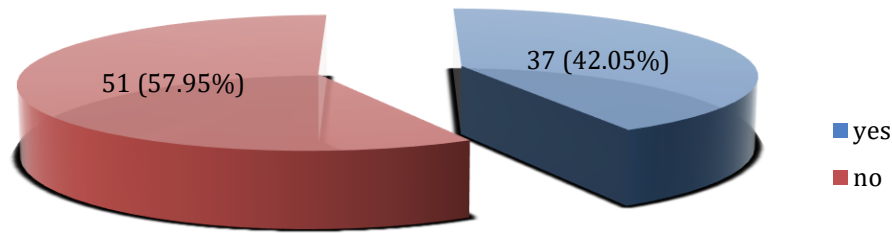
Table-I: Age distribution of patients (n=88).

Age (in years)	No. of Patients	%age
18-25	37	42.05
26-35	51	57.95
Total	88	100.0
Mean ± SD	26.39 ± 3.33 years	

Mean duration of infertility was 4.49 ± 2.21 years (Figure I).

Frequency of patients with respect to obesity is shown in Figure II.

Percentage of patients according to confounding variables is shown in Table II.

Table II: Distribution of patients with respect to confounding variables

Confounding variables		Frequency	%age
Hypertension	Yes	49	55.68
	No	39	44.32
Diabetes mellitus	Yes	18	20.39
	No	70	79.55

Frequency of polycystic ovarian syndrome (PCOS) in females presenting with primary infertility was found in 19 (21.59%) patients as shown in Figure I.

Figure III: Frequency of polycystic ovarian syndrome (PCOS) in females presenting with primary infertility (n=88).
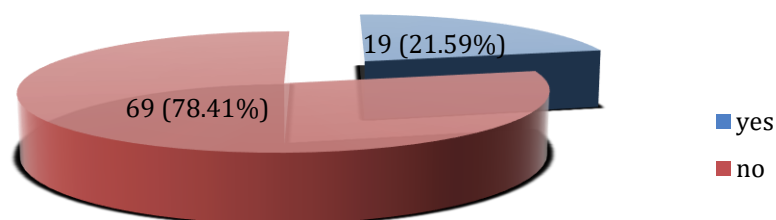
When Stratification of polycystic ovarian syndrome was done on age groups, significant variance among various age groups as shown in Table III while the stratification of polycystic ovarian syndrome with respect to duration of marriage is shown in Table IV which exhibited no significant variance between men and women.

Table III: Stratification of polycystic ovarian syndrome with respect to age groups.

Age (years)	Polycystic ovarian syndrome		p-value
	Yes	No	
18-25	12	25	**0.035**
26-35	07	44	

Table IV: Stratification of polycystic ovarian syndrome with respect to duration of marriage.

Duration (years)	Polycystic ovarian syndrome		p-value
	Yes	No	
≤5	13	50	**0.729**
>5	06	19	

Stratification of polycystic ovarian syndrome with respect to obesity, hypertension and DM is shown in Table V to VII respectively.

Table V: Stratification of polycystic ovarian syndrome with respect to obesity.

Obesity	Polycystic ovarian syndrome		p-value
	Yes	No	
Yes	06	31	**0.297**
No	13	38	

Table VI: Stratification of polycystic ovarian syndrome with respect to hypertension.

Hypertension	Polycystic ovarian syndrome		p-value
	Yes	No	
Yes	13	36	**0.207**
No	06	33	

Table VII: Stratification of polycystic ovarian syndrome with respect to diabetes mellitus

DM	Polycystic ovarian syndrome		p-value
	Yes	No	
Yes	05	13	**0.474**
No	14	56	

DISCUSSION

The most common endocrinopathy in gynecology is polycystic ovary syndrome (PCOS). The resistance to insulin and increased risk of metabolic disorders such as hyperinsulinism, type 2 diabetes, dyslipidemia, cardiovascular disease and endometrial cancer are the common causes of PCOS. Young women are often diagnosed with oligomenorrhoea, anovulatory infertility, or hyperandrogenic problems such as acne and hirsutism[16]. Although this syndrome is associated with obesity, it is more common in women with a normal body confrontation. The American Society for Reproductive Medicine and European Society of Human Reproduction and Embryology have adopted the ASRM/ ESHRE Rotterdam Consensus (Rotterdam Consensus) defined the internationally accepted definition of PCOS, but different experts have given different definitions of the condition of PCOS. The conference was held in Rotterdam in 2003[17].

As there are ethnic disparities in the biochemical and clinical characteristics of PCOS, estimates of the pervasiveness of the condition depend on the community being studied[18].

The prevalence of PCOS in different countries has been found to vary from 2.3% to 27%, dependent on the technique of recruitment, the criteria used to define PCOS, the population studied and the method applied to define each criterion. 40% of females with infertility, 75% of females with irregular menstruation, and 90% of hirsutism affected females, 30% of women with secondary amenorrhea may have PCOS[19-20]. I conducted this study to determine the prevalence of PCOS among women with primary infertility. The majority of patients in this study (51; 57.95%) were between 18 and 25 years of age. The mean age of the patients in this study was 26.39 ± 3.33 years.

These findings were strikingly similar to the research by Sherif F et al. and Fouda UM et al., with mean ages of 26 and 27, respectively[21-22]. Contrary to our study, Hussain NHN et al. revealed a higher average age of 31[23]. In this study, the mean duration of reduced fertility was 4.49 ± 2.21 years, which is quite similar to the study by Hussain NHN et al which was 4.5 years, but slightly longer than in the study. Hakeem culture, lack of knowledge, some social constraints and economic hardships may contribute to this late presentation into our community. Pedersen and Monga et al noted that postponing marriage until the age of 30 would affect the rate of fertility, as fertility drops sharply after the age of 35[24]. The most important determinant of female fertility is age. It is found that younger females (< 35 years) are more probable to develop PCOS than older women. This may be due to a physiological reduction in the follicle cohort resulting in age-related normalization of the ultrasound appearance of the ovaries. The results of our study were consistent with those of Al-Taee and Alnakash, who found that 87.8% of women affected by PCOS were under the age of 35[24-25].

In my study, 19 (21.59%) patients had PCOS, which is communal in females with primary infertility. In the study population, 33% of infertility cases had PCOS. In another study by Haq et al. found that 17.6% of women who reported to the infertility clinic had PCOS. The prevalence and outlook of PCOS varied significantly by country and ethnic group; As a result, the syndrome may vary in prevalence or presentation around the world or among different ethnic groups within a single nation. According to reports, the prevalence of PCOS among South Asian immigrants to the UK was 52%.

CONCLUSION
This study concluded that polycystic ovarian syndrome (PCOS) is relatively common in females who present with primary infertility. Therefore, in order to lower the morbidity of the community, we advise that polycystic ovarian syndrome be considered in every patient of infertile women and that its early detection and care be carried out.

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