

INCREASED RISK OF PSYCHOLOGICAL MORBIDITY IN INFERTILE WOMEN WITH PCOS IN HYDERABAD, PAKISTAN

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Keywords

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Abstract

Background

Polycystic Ovarian Syndrome is the highly common hormonal malady among women and primary source of infertility in reproductive age. The presence of vesicles in the ovaries, extra male hormones and absence of ovum discharge are the basic root of this condition..

Objectives

The objective of this research was to determine the elevated risk of Psychological morbidity in infertile women with PCOS.

Methods

The cross sectional study was conducted in LUHMS Civil Government Hospital Hyderabad from December 2024 to June 2025 to determine the increased risk of mental health issues in infertile women with PCOS. A self-administered questionnaire was developed in order to interview the participants. The simple random technique was used for the selection of study participants. The study was based on 55 infertile women in 20-40 years age. The data was analyzed by SPSS version 23 with significant value set up at $p < 0.05$ and categorical data was assessed by Chi-square test. Moreover, MS excel was also used for graphs and tables.

Results

The study presented 27% prevalence rate of PCOS in patients. Typically, women with this condition faced raised rates of psychological illness as compared to women without PCOS such as depression (53% vs. 30%), anxiety (87% vs. 45%), sleep apnea (40% vs. 8%), and eating disorder (47% vs. 13%). Moreover, low self esteem (40% vs. 20%), followed by hopelessness (27% vs. 5%) and negative body image (20% vs. 12.5%) in women with and without ovarian cyst syndrome. Mainly, infertile women with and without this endocrine disorder were observed between 20-25 years age. Most patients were from urban areas and majority of them were from middle class. Mostly were facing primary infertility (60%) than secondary infertility (40%). Many were infertile for above two years (73% vs. 87%). Mostly, women experienced acne, skin pigmentation, hirsutism and hair fall. The BMI showed that maximum patients of both PCOS and without PCOS (46% vs. 35%)

were obese > 30.

Conclusion

Psychological morbidity is the increasing problem of PCOS in infertile women in Hyderabad. It causes momentous psychological impacts on quality of life of infertile women. As a result, they feel not in control of the disease, do not accept their physical appearance, and feel hopelessness and low self-esteem. So, following a healthy lifestyle with a healthy balanced diet, regular physical activity, and weight loss before treatment, can manage the severity of the syndrome, handle troublesome symptoms of the disease, and improve quality of life and self-worth

INTRODUCTION

Polycystic Ovary Syndrome is a typical endocrine condition. According to 2018 review, that it affects around one out of ten women of reproductive age. Stein and Leventhal discovered the disease and named it in 1935 (Asunción et al., 2000; Stein, Leventhal, & gynecology, 1935). Stein and Leventhal laid out the details of seven cases of PCOS in the females with polycystic ovaries, hirsutism, obesity, and oligo/amenorrhea in the article (Naqvi, Bhattarai, Li, & Wang, 2020). The World Health Organization (WHO) estimated that PCOS affected 116 million women (3.4%) in 2012 globally (Mohan, 2010). Several studies have postulated it as a lifestyle disorder that is linked to the environment and standard of living of women (Balaji et al., 2015; Bharathi et al., 2017; Ee, Pirotta, Mousa, Moran, & Lim, 2021; Lim et al., 2019). It is a condition in which at least one ovary has an ovarian volume greater than 10 mL and not less than one ovary has developed approximately ten small cysts, ranging from 2 to 9 mm in diameter (S. Singh et al., 2023). These cysts are sacs which contain fluids when eggs normally grow, and they are not underdeveloped. Women with this condition are unovulated because their ovaries usually fail to release an ovum. So the ovaries create lots of small fluid-filled sacs (cysts) when they do not ovulate. The exact way of PCOS development is not fully understood. Individuals with this syndrome have various characteristics of a typical function. The polycystic ovary syndrome is known as a

multifactorial disorder. because it is associated to multiple things such as lack of exercise unhealthy diet, , changes in daily habits, insulin resistance (IR), stress, obesity hyperandrogenism and genetic inheritance. Various research studies reported that the symptoms of this problem are different in persons present in plenty of the research papers. It's symptoms can present at a defined age or time in a person's reproductive age, and can change. Symptoms include gaining overweight, facial and body hair, and much more ordinary signs are irregular or missed periods due to anovulation, ovaries with many small cysts, high levels of androgens, menorrhoea, oligomenorrhoea excess facial or body hair, acne, type 2 diabetes (Agawala et al., 2024; Rafique, Salma, Saleem, & Review, 2023). It remain undiagnosed due to patient presentation and a lack of provider knowledge (Hoffman, Ehrmann, & metabolism, 2008; Li et al., 2013) . To diagnose PCOS, a thorough medical evaluation is mandatory and this may include medical and menstrual history of women., any known hormonal abnormalities or hereditary diseases in the family, and any past medical treatment or medicines prescribed. It is possible to inquire about male pattern hair loss and acne etc for diagnosis, Women who suffer from this condition had been shown to face substantial psychic and reproductive complications in contrast to healthy women. These include infertility, mood swings, tension, anxiety, depression, Low self-esteem, decreased sexual satisfaction and lower quality of life. Specially in cultures where there is discrimination against women,

her psychosocial problems are generally too damaging to the female gender rather than to her partner. Consequently, the infertile women behave with a relatively high degree of annoyance and rage which may create impact on her interactions with her friends, family, and husband. Infertile women are likely to face multiple psychological well being related issues, spousal disaffection, low quality of life compared to their fertile counter-part. This possibly hinders their proper adherence to healthy living practices (Bakhtiyar et al., 2019). Pakistan is amongst the countries where data regarding the complications related to PCOS is scarce. However, descriptive studies conducted in different parts of the country reported a high prevalence (45-55%) of PCOS and infertility (Memon, Channar, Shah, Shaikh, & Nawabshah., 2020). Therefore, this study was conducted to find the intensified peril of psychological morbidity in infertile women experiencing PCOS in Hyderabad, Pakistan.

MATERIALS AND METHODS

Study Area

The cross-sectional study was executed at the LUMHS Civil Government Hospital Hyderabad Sindh, where gynecologists were available for female infertility. The period for data collection at LUMHS Civil Hospital, Hyderabad was December 2024 to March 2025.

Study Design

The purpose of this research was to measure the heightened risk of psychological abnormalities in infertile patients with PCOS in Hyderabad. The questionnaire designed as per WHO and research objectives of this study. The data was collected from studied population under the supervision of supervisor and concerned doctor. The questionnaire was divided into four different sections. The initial section comprised of obligatory inquiries about the patients' sociodemographic particulars like age, education, occupation, family economic

status, place of residence, marital period, offspring and infertility duration. The subsequent section patients were inquired about the psychological condition and their relation with their husbands families and friends. In the third segment, risk factors of PCOS (polycystic ovarian syndrome) including family history, BMI, dietary habits, level of physical activity and hormonal regulation were highlighted. In the fourth part, participants were also inquired about their medical conditions connected with PCOS and the responses were gathered through yes or no option. Additionally, patients were asked regarding their treatment. The Body Mass Index (BMI) of studied population was calculated by dividing weight (kg) by height in square meters. The local ethics committee approved the data, and each patient was given written informed consent.

Participants Eligibility Criteria

Total 55 participants were reported in the study who attended fertility OPD who were facing infertility among which 15 patients were suffering from PCOS. The infertile women with and without PCOS were aged 20-40 years were included in the study and recruited using simple random sampling method in the study.

Statistical Analysis

The assembled data was entered in MS excel and analyzed in the statistical Package for social sciences (version 23) and categorical data was assessed by Chi-square test. The numerical values were displayed in terms of descriptive statistics of mean, and standard deviation for age, education and marriage span. For all P-value ≤ 0.05 was considered to be significant.

RESULTS AND DISCUSSION

In the current study total 55 patients were evaluated in the study period who attended fertility OPD among which 15 patients were found to have polycystic ovarian syndrome (PCOS) with the prevalence rate of 27%.

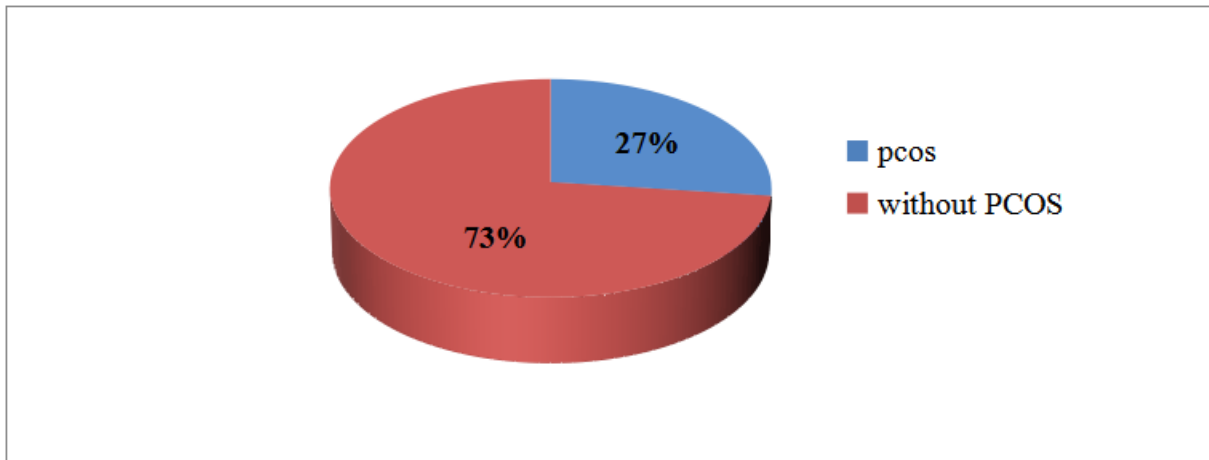


Figure 1. representing the prevalence rate of PCOS in infertile women

Table 1 showed significant difference ($p < 0.05$) in anxiety, depression, eating disorder and sleep apnea in PCOS and without PCOS patients. PCOS patients implied that high frequency of anxiety (87% vs. 45%) depression

(53% vs. 30%) eating disorder (47% vs. 13%) and sleep apnea (40% vs. 8%) as compare to without PCOS patients.

Table 1. Prevalence of Psychological abnormalities in infertile women with and without PCOS

Parameters	PCOS Patients No.15	Without PCOS Patients (No.40)	χ^2	P value
Anxiety	13(87%)	18 (45%)	206.09	.000
Depression	8 (53%)	12 (30%)	214.26	.000
Eating disorder	7 (47%)	5 (13%)	216.93	.000
Sleep Apnea	6(40%)	3(8%)	196.02	.000

Table 2 pointed out that psychological abnormalities had colossal impact on mental stability of infertile women with and without PCOS. This study located that substantially women with above mentioned psychological abnormalities had low self esteem (40% vs. 20%), followed by hopelessness (27% vs. 5%) and negative body image (20% vs. 12.5%) in PCOS group. Whereas, somewhat without

PCOS women had no impact of those abnormalities on their quality of life but some women were also suffering from low self esteem, negative body image and hopelessness. This study proved significant difference ($p < 0.05$) in impacts of psychological abnormalities in PCOS and without PCOS patients..

Table 2. Impacts of psychological abnormalities on the life of infertile women with and without PCOS

Parameters	PCOS Patients (No. 15)	Without PCOS Patients (No 40)	χ^2	P value
Hopelessness	4(27%)	2(5%)	350.11	.000
Low self esteem	6 (40%)	8 (20%)	448.08	.000

Negativ body image	3(20%)	5(12.5%)	210.597	.000
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Table 3 illustrated that psychological abnormalities had great influence on different spheres of life of infertile women. Ordinarily, psychological abnormalities effects on social sphere (33% vs. 25%), (family sphere (27%

vs. 30%) and the minimal frequently on sexual sphere (13% vs. 20%) of PCOS and without PCOS patients.

Table 3. Impacts of psychological abnormalities on spheres of life of infertile women with and without PCOS

Parameters	PCOS Patients	Without PCOS Patients	X ²	P value
Sexual sphere	2(13%)	8(20%)	164.33	.000
Family sphere	4(27%)	12(30%)	207.77	.000
Social sphere	5(33%)	10(25%)	220.22	.000

The table 4 indicated the smallest no. of patients reporting age in PCOS group was between 30-35 with the mean age of 31.5±0.7 years (13%), while without PCOS were between 35-40 with the mean age of 38±1.87 years (12.5%). Although, highest no. of patients were seen in age of 20-25 in both PCOS and without PCOS patients with the average age of 22.88±1.90 vs. 22.68±2.18 years (67% vs. 40%). Other groups stated the following ages among the PCOS and without PCOS patients. Patients between 25-30 with mean age 27.66±2.08 vs. 29±1.27 years (20% vs. 30%). Patient between 30-35 with mean age 33.71±1.60 years (17.5%) without PCOS. while, patients between 35-40 with mean age with PCOS were not viewed. The results on the level of education evinced that generally patients with and without PCOS were illiterate 6.5± 3.60 vs. 14±7.93 (80% vs. 67.5%) On the other hand, literate patients were 2±1 vs. 7±3.89 (20% vs. 32.5%). This study expressed that the outmost percentage

of both PCOS and without PCOS patients 4.33±1.93 vs. 4.53± 2.04 (67% vs. 85%) were present in marital duration 1-10 years. Furthermore, this study also considered following results such as 11-20 years marital duration was 13±1.82 vs.13.16±2.40 (26 % vs. 15%) and between 21- 30 years 22±0 (7%) PCOS patients, while without PCOS patients were not noticed in this duration. The results sported that larger figure of PCOS patients were from middle economic class (47%) Though, without PCOS patients often belonged to lower economic class (52.5%). Likewise, the patients of PCOS from lower class(40%) and upper class were (13%) Moreover, the patients without PCOS from middle class were (35%) and upper class (12.5%) which was the significant difference (p<0.05) between both groups. In this study it was noted that largest part of the patients either they were PCOS or without PCOS were residing in urban area (80% vs. 87%), in comparison to rural areas (20% vs. 12.5%).

Table 4. Demodegraphic features of infertile women with and without PCOS

Variables Assessed	PCOS patients (No.15)		Without PCOS patients (No.40)		X ²	P value
	%	Mean ±SD	%	Mean ±SD		
Age groups						
20 - 25	10(67%)	22.88±1.90	16(40%)	22.68±2.18	150.95	.000

25 - 30	3 (20%)	27.66±2.08	12(30%)	29±1.27	195.00	.000
30 - 35	2 (13%)	31.5±0.70	7(17.5%)	33.71±1.60	161.97	.000
35 - 40	-	-	5(12.5%)	38±1.87	257.89	.000
Education						
Literate	3(20%)	2± 1	13(32.5%)	7±3.89	74.21	.000
Illiterate	12 (80%)	6.5± 3.60	27(67.5%)	14±7.93	52.84	.000
Marital Duration						
1 - 10	10 (67%)	4.33±1.93	34 (85%)	4.53± 2.04	112.74	.000
11- 20	4 (26%)	13±1.82	6(15%)	13.16±2.40	260.00	.000
21- 30	1 (7%)	22±0	-	-	130.00	.000
31- 40	-	-	-	-	-	-
Economic Status						
Lower class	6(40%)		21(52.5%)		63.25	.000
Middle class	7(47%)		14(35%)		77.90	.000
Upper class	2(13%)		5(12.5%)		60.37	.000
Area of residency						
Urban	12(80%)		35(87%)		44.51	.000
Rural	3(20%)		5(2.5%)		66.38	.000

Table 5 explained that anxiety, depression, eating disorder and sleep apnea were predominantly ordinary in urban areas as compare to rural areas..PCOS women had anxiety (26% vs. 27.5%), depression (20% vs. 20%), eating disorder (6.6% vs. 12.5%) and

sleep apnea (13%vs. 7.5%) in urban areas. In rural area, anxiety (6.6% vs. 7.5%), depression (6.6%vs. 6.6%) were observed. Nevertheless, eating disorder and sleep apnea were not gotten in rural areas.

Table 5. Prevalence of psychological abnormalities in infertile women with and without PCOS in urban and rural areas

Parameters	Urban Areas		χ^2	P value	Rural Areas		χ^2	P value
	PC OS Pat ien ts	Without PCOS Patients			PCOS Patients	Without PCOS Patients		
Anxiety	4(26%)	11(27.5%)	124.95	.000	1(6.6%)	3(7.5%)	130.03	.000
Depression	3(20%)	8(20%)	112.89	.000	1(6.6%)	1(2.5%)	161.45	.000
Eating disorder	1(6.6%)	5(12.5%)	100.73	.000	-	1(2.5%)	107.28	.000
Sleep Apnea	2 (13)	3(7.5)	119.71	.000	-	-	102.73	.000

	%)						
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The table 6 proved that the primary infertility was the universal type of infertility in both PCOS (60%) and without PCOS patients (67%). An average duration of infertility was more than or equal to two years in most of the

PCOS and without PCOS women 5.27 ± 1.83 vs. 5.76 ± 3.42 (73% vs. 87%) which was a significant difference ($p < 0.05$) between PCOS and without PCOS patients.

Table 6. Types of infertility and duration of infertility in PCOS and without PCOS Patients

Parameters	PCOS Patients	Without PCOS Patients	χ^2	P value
Primary Infertility	9(60%)	27(67%)	282.35	.000
Secondary Infertility	6(40%)	13(33%)	515.69	.000
≥ 2 years	11(73%)	35(87%)	123.30	.001
≤ 2 years	4(27%)	5(13%)	172.61	.000

Figure 2 stated that remarkably prevailing physiological features in PCOS and without PCOS were Alopecia (100% vs. 12.5%), Acne

(53% vs. 15%), hirsutism (47% vs. 5%) and skin pigmentation (20% vs. 12.5%).

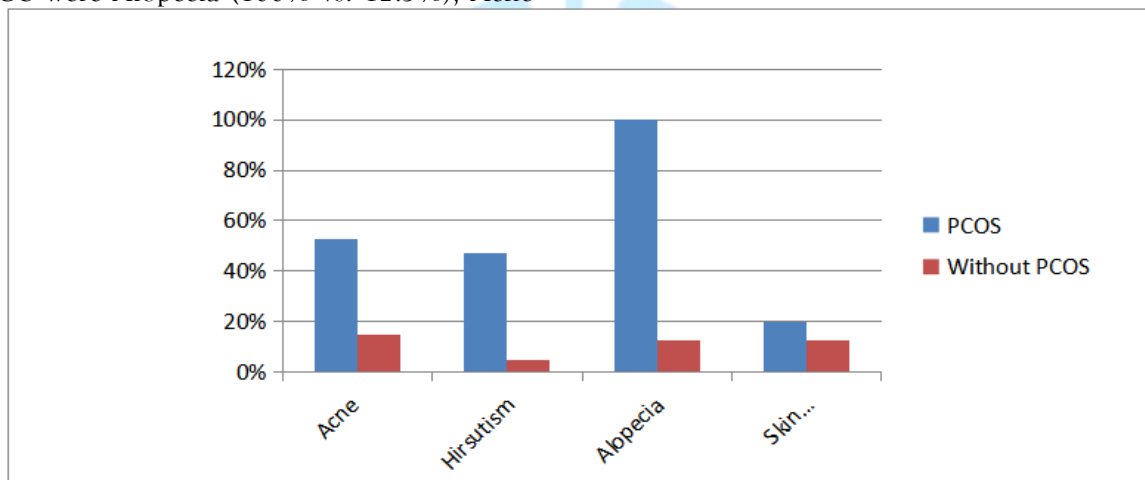


Figure 2. Morphological features of PCOS and without PCOS in infertile women

Figure 3 classified BMI kg/m^2 that maximum patients of both PCOS and without PCOS (46% vs. 35%) were obese > 30 , (27% vs. 30%) were overweight $25 - 30$, (20% vs. 20%) were

normal weight $18.5 - 25$ and (7% vs. 15%) were underweight < 18.5 .

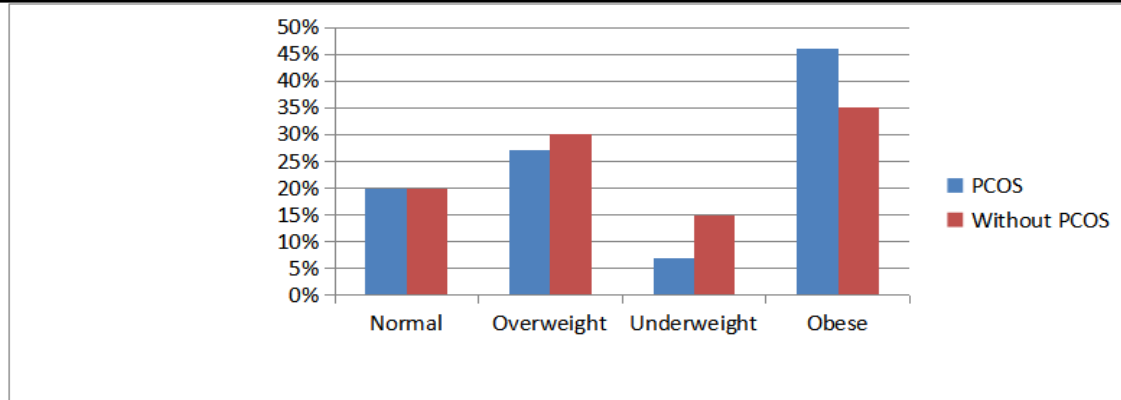


Figure 3. BMI of infertile women with and without PCOS

DISCUSSION

The main objective of this study was to determine the surged risk of psychological abnormalities in infertile women with PCOS in Hyderabad. In this study, total 55 patients were figured out that came for fertility check-ups. Among which 15 were viewed to have polycystic ovarian syndrome. Hence, the prevalence rate was 27%. The figure of women of child-bearing age with PCOS varies globally due to genetic and environmental influences. To illustrate, the prevalence of PCOS in patients with infertility, as reported in the literature, differs spatially as 8 to 3.7%, 12.2%, 31.25%, and 54.4% (Agawala et al., 2024; Gill, Tiwari, Dabadghao, & metabolism, 2012; Omokanye et al., 2015; Zafar et al., 2019). Moreover, the study from Iran reported 14.6% and 7.1% prevalence of PCOS (Tehrani et al., 2011). It may be hypothesized that geographical differences around the globe and disagreements over the diagnostic standards of researchers may contribute to the variances of PCOS in different series. The study spotted that the growing number of PCOS patients had anxiety and depression. In Pakistan, leading number of young married patients with PCOS suffers from depression. People suffering from depression may not only suffer from psychological harm but also a serious bodily harm. Numerous studies reported same findings that anxiety and depression were frequently boosted Infertility, and

psychological problems in PCOS Patients. As per study, women affected by PCOS experienced exceptional anxiety and depressive symptoms than without PCOS. Similarly, this study ascertain that nearly women with the above-mentioned psychological abnormalities had low self-esteem followed by hopelessness and negative body image in the PCOS group. In contrast, some women of without PCOS had no impact of that complication on their quality of life but some women were also suffering from low self-esteem, negative body image and hopelessness. The study reported that infertility was also a major risk factor for psychological problems, poor quality of life and eating disorder. Moreover, other studies also reported the prevalence of anxiety, depression and mood-swings/depressive feelings in infertile women (Bhamani et al., 2020; Kiani, Simbar, Hajian, Zayeri, & practice, 2021; A. Singh, Vijaya, & Laxmi, 2018). In addition, various studies had also corroborated that psychological disorders among PCOS patients might be associated with infertility because PCOS women face pressure from their family, friends and even society as a whole due to infertility (Tan, Wang, Feng, Li, & Huang, 2017). Based on the survey approximately with and without PCOS patients were in the age group of 20 – 25 years which coincide with the study of (Mangalath et al., 2018), but inconsistent with the study of (Dasgupta & Reddy, 2013) that

explained age between 20-23 and 24-27 years. This study noted escalated number of middle class PCOS patients. The result of the study group was higher in relation to that reported by (Sarkar, Das, Mukhopadhyay, Chakrabarti, & Majumder, 2006). Mean while, over half of the PCOS women were from middle economic class. In this study the prevalence of urban was higher as compare to rural. In other study the lifestyle change (less exercise and no physical activity) was shown to be a key factor for more cases of PCOS in urban than rural settings (Dhagat, Shah, Thakar, & Deliwala, 2013).

Primary infertility was the commonest in PCOS and Without PCOS patients than secondary infertility. Different studies had been performed in different areas that presented primary infertility was highly generic as compare to secondary infertility (Musharraf et al., 2025; Mushtaq, Bibi, & Kausar, 2023). This research revealed that usually PCOS and without PCOS women suffered from infertility had incurred infertility for at least two years. Even though, (Mirdha, Patidar, & Mahadik, 2023) sighted the average time of reduced fertility was significantly higher than the exhibited survey. The average duration of infertility in another study was seen as 6.5 years (Hussein & Alalaf, 2013).

This finding contradicted a research exhibited by (Detti et al., 2015; Memon et al., 2020) that acne, alopecia, and excessive hairiness in patients with PCOS. The BMI was significantly different in PCOS women than without PCOS. Prominent number of patients of both PCOS and without PCOS group had BMI > 30. This study matched with the study of (Memon et al., 2020; Mobarezi, 2025). which put on view that that patients coming to the gynecological clinic for PCOS predominantly were obese and overweigh. The average Body Mass Index (BMI) was parallel to this research. The result pointed out that infertile patients with PCOS had a tendency to have high BMI.

CONCLUSION

In conclusion, patients with PCOS were at the increased risk of psychological abnormalities and infertility which led to the great impact on the life (hopelessness, low self esteem, negative body image) and different spheres of life (family sphere, social sphere, and sexual sphere) All psychological aspects were highly prevalent in PCOS patients as compare to without PCOS patients.

RECOMMENDATIONS

Future research should focus on:

1. **Obesity** is one of the reasons for PCOS, so maintaining a healthy lifestyle by doing moderate exercise and having an organic vegetable, meat, fruit and dried fruit diet is essential for weight reduction.
2. **Avoid alcoholic drinks** processed foods and caffeinated drinks as they can interfere with your hormone levels.
3. **PCOS screening** should be part of every regular health check-up for women facing infertility issues.
4. **Taking care of psychological health** may prevent anxiety and depression, as these can make the reproductive cycle difficult and affect the hormones. To manage it meditation, CBT, social support, sleep adequately, etc. are important.

AUTHER'S CONTRIBUTIONS

All the authors agreed for the publication of this present work and conform that all materials, data and results reported in this study are based on hospital based survey followed by manuscript preparation and submission, where all authors made their due contributions Uzma Jani directed the research work and wrote the first draft of the manuscript, Dr. Naheed Shah conceived the idea and supervise the work throughout, Rahmat ul Aqsa helped in data collection of patients and Tanzeela Shaikh helped in statistical analysis of the data. All the authors read and approved the final manuscript.

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AVAILABILITY OF DATA AND MATERIAL

The compiled and analyzed data is available in the form of figures and tables.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The current study was checked and approved by the relevant team.

CONSENT FOR PUBLICATION

All authors have reviewed the manuscript and approved it for publication.

CONFLICT OF INTERESTS

The authors declare no conflict of interest.

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