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Clinical features of Women with Polycystic Ovary Syndrome: Control study

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Abstract: Background: Polycystic ovary syndrome (PCOS) is a hormonal disorder, widely recognized as a prevalent endocrine condition among women of reproductive age. Various studies have highlighted the involvement of ovarian factors in promoting this disorder. PCOS disrupts the typical monthly ovulation cycle, resulting in hormonal imbalances. Elevated insulin levels and unstable blood sugar further contribute to hyperandrogenism, a key player in its development, alongside genetic predisposition.

Objective: The study aims to delineate the primary indications and symptoms observed in women with polycystic ovary syndrome.

Methodology: Research is designed as an analytical group-control case study, whereby a prospective sample involving 100 women diagnosed with PCOS recruit and match this number of healthy women from Babylon province as a control sample. The research conducted utilized the questionnaire with a particular focus on the contribution of polycystic ovary syndrome into presenting the clinical symptoms.

Results: One interesting finding from the research is the fact that the largest group (62%) respondents to the survey are married and aged 21-24 years (34%). In physical terms they had the same symptoms as the rest: hair thinning or loss, high level of testosterone, irregular menses, anxiety, depression etc. hypertension, a heavy menses and apnea during sleep were among the symptoms. There was a 1. 7:First, odd ratio to assess the link between testosterone levels and psychological well-being.

Conclusion: Research shows that PCOS is directly connected to a series of other problems like unpredictable and the rough menstruation cycles, hair thinning or loss and others like these. Not surprisingly, mental happenings problems tend to surface, as well. According to this, PCOS or polycystic ovary syndrome, is a medical condition that is not apparent till the time it results in very serious complications. It necessitates the need for more research and awareness campaigns.

Keywords: Women, Polycystic Ovary Syndrome

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Introduction

Research conducted by Mazuz et al. (2020) indicates that polycystic ovarian syndrome (PCOS) is among the most common endocrine disorders affecting reproductive-age women. Several ovarian variables have been identified as contributing to its development in a plethora of investigations. When the body's normal monthly ovulation process is interrupted, it leads to a hormonal imbalance, which is known as this syndrome. The major element in its development, hyperandrogenism, is caused by elevated insulin levels and erratic blood sugar levels; hereditary effects also play a role, as mentioned by (Purwar, 2021).

PCOS is identified by chronic lack of ovulation, irregular menstruation, and evident hyperandrogenism, which collectively make it a major source of infertility globally. It has even been poetically referred to as the "thief of womanhood." The prevalence of PCOS among women ranges from 5% to 55%, and Pakistan is among the countries with limited data on its associated complications. Despite this, descriptive studies conducted across the nation have reported a high occurrence (45-55%) of both PCOS and infertility (Zhuang et al., 2022). PCOS is typically connected with hormonal irregularities stemming from changes in hormone concentrations like luteinizing hormone, prolactin, estrogen, and serum androgens. Diagnosis involves a combination of clinical, laboratory, and ultrasound examination of ovarian morphology, with three specific criteria often used (Yousaf *et al*., 2022).

There is rising evidence that PCOS is associated with vitamin D deficiency, however, we do not have conclusive results of the effect of its supplementation on this condition, in spite of numerous intervention studies that addressed this hypothesis. So for this purpose, our meta-analysis intended to give us a way of summarizing all the data about how vitamin D supplement carried out the metabolic and hormonal processes in PCOS patients (Miao, 2020). Subjects The primary goal of this study is a comparison and contrast analysis of healthy women with PCOS women. As a result, the most common symptoms and signs that point to the disorder can be identified.

Methodology

Study Design

An analytic case-control study design was utilized to portray the attributes of polycystic ovary syndrome occurring in women. This methodology was employed to achieve the objectives of the current research by examining the clinical traits of polycystic ovary syndrome at Babylon Medical City Hospitals between January 8th and May 20th, 2022.

Administrative and Ethical Approval:

Before data collection, authorization was obtained from Babylon hospitals center, as detailed in the appendix (A). Women were invited to participate voluntarily. The research objectives and potential advantages were elucidated to the participants to facilitate their decision on participation.

Study Context:

A validated questionnaire, modified from existing literature and studies, was selected for this investigation. This tool was applied in the medical care context of Babil Medical City hospitals.

Sampling:

A probabilistic random sampling technique was employed, involving a total of 100 women diagnosed with the disease and an equivalent number of healthy women at Babylon Medical City Hospitals.

Study Instruments:

A questionnaire encompassing two sections and containing 20 questions was utilized to address inquiries about the clinical characteristics of polycystic ovary syndrome at Babil hospitals. The questionnaire gauges the clinical attributes of the syndrome. The questionnaire, comprising 29 items, was distributed in paper format (refer to appendix A). The items were rated on a binary scale, where one indicated 'yes' and two indicated 'no'. The study concentrated on one section concerning general information about clinical features.

Part 1: Socio-demographic Data:

This segment gathers details about age, monthly income, household attributes, marital status, residency, education, employment, and worth

Part 2: General Information

This segment entails general information about the subjects.

Data Collection:

Data collection was carried out through paper questionnaires distributed to women in Babil city from January 8th, 2022, to February 19th, 2022. Participants were given 15-20 minutes to complete the questionnaire, during which they could seek clarification from the researcher.

Statistical Analysis:

Statistical analyses were performed using Statistical Package of Social Sciences (SPSS) version 26 and Microsoft Excel (2016). Descriptive analysis was conducted and using chi square and fisher exact test to depict sample and clinical characteristics among women at Babylon Medical City center Hospitals.

Results

The study's outcomes have been examined based on its objectives and structured in the subsequent manner. The analysis includes evaluating the level of social proof within females afflicted by PCOS at Imam Al-Sadiq Hospital, as well as assessing the most prevalent symptoms among women with PCOS in Babil Governorate. Additionally, understanding the magnitude of psychological factors and social interactions among women dealing with PCOS was also investigated.

Table1: Socio-demographic characterizes of the samples.

No.	Variable		
	Age (year)	**Frequency**	**%**
1	13-16Years	3	3
2	17-20Years	9	9
3	21-24Years	34	34
4	25-28Years	24	24
5	29-32years	16	16
6	33-36years	5	5
7	37-40 Year	5	5
8	More than 41 Years	4	4
	Total	100	100.0
	Marital Status	F.	%
1	Single	17	17
2	Married	62	62
3	Divorce	13	13
4	Widow	8	8
	Total	100	100
	Residency	**Frequency**	%
1	Urban	53	53
2	Rural	47	47
	Total	100	100
	Educational level	**Frequency**	%
1	Uneducated	54.0	54.5
2	Read and write	21.0	21.0
3	Primary	22.0	22.2
4	Middle	3.0	3.0

	Total	100	100.0
	Monthly income	**Frequency**	%
1	Enough	34	34
2	Enough to some of	60	60
3	not enough	6	6
	Total	100	100

The data in the table illustrates that the majority of the study samples (34%) fell within the age range of 21 to 24 years, and 24% were aged between 25 and 28 years. A smaller percentage (4%) were older than 41 years. In terms of marital status, 62% were married, while 8% were widowed. Regarding their place of residence, 53% lived in urban areas, while 47% resided in rural locations.

In relation to their educational background, 54% had not received any formal education, 21% possessed basic reading and writing skills, and 3% had attained a moderate level of education. Turning to monthly income, 60% had an income that was sufficient for some of their needs, whereas 6% reported insufficient income.

Table 2: Frequency of hair loss among women with PCOS.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	85	85	85	85
	No	15	15	15	100
	Total	100	100	100	

The table shows that (85%) have weak hair while (15%) with normal hair distribution.

Table 3: Frequency of hair weak among women with pocs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	76	76	76	76
	no	24	24	24	100
	Total	100	100	100	

The table shows that (76%) with hair loss, (24%) were don't suffer from the problem.

Table 4:frequency of mental problems among women with PCOS.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	40	40	40	40
	yes	60	60	60	60
	Total	100	100	100	100

The table shows that (60%) with mental health problems, (40%) regard mentally health.

Table 5. Frequency of colporrhagia among women with PCOS.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	52	52	52	52
	no	48	48	48	100
	Total	100	100	100	

The table shows the (52.0) with colporrhagia health problems, (48%) were health.

Table 6: Frequency of menstrual cycle among women with pocs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	regular	24	24	24	24
	irregular	76	76	76	100
	Total	100	100	100	

The table shows the (76.0) with menstrual cycle health problems, (24%) with regular menstrual cycle.

Table 7: Frequency of Androgen increase among women with PCOS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	60	60	60	60
	no	40	40	40	100
	Total	100	100	100	

The table shows the (60.0) with Androgen increase health problems, (40%) of them with normal level of this Hermon.

Table8: frequency of acne in face among women with PCOS.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	39	39	39	39
	no	61	61	61	100
	Total	100	100	100	

The table shows the (39.0) with acne in face health problems, (61%) were absence of acne problem in their faces.

Table9: frequency of blood pressure among women with pocs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hypertension	54	54	54	54
	Normal	27	27	27	81
	Hypotension	19	19	19	100
	Total	100	100	100	

The table shows the (54.0) with blood pressure health problems, (19%) were having drop in blood pressure.

Table 10. Frequency of sleep apnea among women with pocs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	55	55	55	55
	No	45	45	45	100
	Total	100	100	100	

The table shows the (55.0) with sleep apnea health problems,(45%) were sleep normally without difficulties.

Table 11. Frequency of anoxia among women with PCOS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	56	56	56	56
	No	44	44	44	100
	Total	100	100	100	

The table shows the (56.0) with anoxia health problems, (44%) were healthy appetite.

Table 12: Risk factor between healthy women and women with pcos

Risk Estimate			
	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for androgen (yes / no)	1.727	.318	9.372
For cohort mental h = yes	1.667	.340	8.175
For cohort mental h = no	.965	.869	1.071
N of Valid Cases	100		

Descriptive statistics of the risk ratio to measure the odd ratio display chance to develop the problem in rate 1.7

Polycystic ovary syndrome (PCOS) is a condition where the ovaries produce an excessive amount of male sex hormones called androgens, typically present in small quantities in women. PCOS is characterized by the presence of multiple small fluid-filled sacs, or cysts, in the ovaries. However, not all women with PCOS have cysts, and some women without PCOS can develop cysts.

Table 13: Association between the residency and menstrual cycle

Chi-Square Tests						
	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	10.465[a]	4	.033	0.022		
Likelihood Ratio	10.743	4	.030	.022		
Fisher's Exact Test	10.421			.014		
Linear-by-Linear Association	.316[b]	1	.574	.613	.325	.069
N of Valid Cases	100					

Fisher's Exact Test was used to measure the association between the residency and menstrual cycle. Table (13) shows that there is a statistical significant association between the residency and menstrual cycle. ($X^2 = 10.421$, $P = .014$).

Discussion:

Table 1 presents the demographic characteristics of the sample. A significant proportion of women in the PCOS study group were between 21 and 24 years old (34%), indicating an early desire for conception due to marriage at a young age. This aligns with Ali, (2014) study, which reported a high percentage of infertile PCOS women aged 21–34 years (83%). Similarly, a local study by (Alnakash and Al-Taee ,2007) showed that 87.8% of women with PCOS were below 35 years old.

Discusses the relationship between Socio-Economic Status (SES) and PCOS patients. The study found that 60% of PCOS patients had a middle socioeconomic status, differing from(Ali, 2014) local study where the

majority were in the low category (66%). This also contrasts with (Wang et al., 2011) findings of a strong link between low SES and PCOS.

Educational level is explored in 5.3. The study reveals that 53% of PCOS women were highly educated. This result aligns with (Tabassum et al., 2021) and contradicts Wang (2011) discovery of low education associated with lower PCOS risk.

Analyzes the impact of residency. Urban PCOS prevalence (53%) exceeds rural prevalence (47%), consistent with (Eleawi et al., 2015) findings of 96% in urban areas. Similarly, an Indian study (Balaji et al., 2015) corresponds with these results.

Part 2 provides an overview of PCOS clinical features. Menstrual irregularities were prevalent in the PCOS group (75%), consistent with (Al-saadi and Jasim's, 2019) study (82.5%). Acne was less common in PCOS patients (39%), differing from (Al-saadi and Jasim, 2019) and (Eleawi et al., 2015). Hair issues, such as thinning and loss, were attributed to excessive androgenic hormones in PCOS patients. Our study shows 85% with weak hair and 75% experiencing hair loss, aligning with (Patil et al., 2019) and (Hussein and Alalaf, 2013).

The endocrine aspect (5.4.1) highlights the connection between androgen and PCOS. Elevated androgen levels, particularly testosterone and LH, were observed, consistent with previous research (Alsaadi and Mohamad, 2019; Ibrahim and Abdelsalam, 2015; Cascella et al., 2008; Yesilada et al., 2006; Hendriks et al., 2007). Insignificant FSH changes were also noted.

Blood pressure (BP) findings showed 54% of PCOS patients with hypertension, differing from Eleawi et al.'s (2015) 3.4% finding but aligning with (Wu et al., 2020).

Mental health concerns were prevalent (60%), matching (Brutocao et al., 2018) and (Mansson et al., 2008) findings. Sleep apnea incidence in PCOS patients was 55%, corroborating (Van Cauter et al., 2007) and (Helvaci et al., 2017).

Lastly, the study found a 56% prevalence of anoxia among PCOS women, agreeing with (Bazarganipour, 2013).

In conclusion, PCOS is associated with various clinical manifestations, particularly weak hair, hair loss, irregular menstruation, mental health issues, and sleep apnea. Addressing these concerns, especially among young females, is vital.

Table (13): Association between the residency and menstrual cycle:

There are strong associations this occurs maybe linked with the nature of rural environment and the pure of air assumption or maybe related to work or lifestyle of women in rural regions this may effect on it, this researcher opinion.

Recommendations

Include psychoeducational programs, nurse training, and further research.

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