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A study to assess the prevalence of hormonal versus structural abnormalities of women with polycystic ovarian disease in SMVMCH at Puducherry

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Abstract
Polycystic ovarian disease (PCOD) is the commonest hormonal disturbance to affect women. The main problems that women with PCOD experience are menstrual cycle disturbances, infertility and skin problems. The present study was conducted to assess the prevalence of hormonal versus structural abnormalities of women with PCOD at SMVMCH. Non-experimental descriptive research design was selected, and the study samples comprise of 100 women with PCOD at SMVMCH. Out of that, 11 (11%) had mild prevalence, 69 (69%) had moderate prevalence and 20 (20%) had severe prevalence of hormonal abnormalities. In structural abnormalities, in that 11 (11%) had mild prevalence, 61 (61%) had moderate prevalence and 28 (28%) had severe prevalence of structural abnormalities. Thestructural abnormalities had the highest mean value and standard deviation are 2.1700 and 0.60394 respectively. The hormonal abnormalities had the lowest mean value and standard deviation are 2.0900 and 0.55222 respectively. The findings reveals that polycystic ovarian diseases are mainly due to structural abnormalities.

Keywords: Polycystic ovarian disease, hormonal abnormalities, structural abnormalities, prevalence

Introduction
The main problems that women with PCOD experience are menstrual cycle disturbances (irregular or absent periods), infertility and skin problems (acne and unwanted hair growth on the face or body). Not all women with PCOD experience all of the symptoms and furthermore a woman's problems may change over time. Many women with PCOS have difficulty in controlling body weight. About 25-30% of women have polycystic ovaries, although a smaller proportion will have symptoms of the polycystic ovary syndrome – perhaps 15% of women.

Need For Study
PCOS affects 7-10% of women of childbearing age (15 to 45 years).In women of Indian subcontinent, prevalence rates as high as 50% have also been detected and is a leading cause of infertility, primarily secondary to anovulation.
A review of the 28 studies published in the last 3 years that included PCOS patients with age <=18 yrs described only 6.4% (27/425) of pediatric subjects with age <13 yrs. Four were primarily pediatric studies that included patients under the age of 13 yrs, with 9.4% (12/127) of the patients <13 years. This studies concluded that increased awareness of PCOS in young females is needed. PCOS may occur at a younger age in girls who develop early puberty. Therefore, the diagnosis and workup should be considered in young girls with risk factors suggestive of PCOS. From the above statistical report shows that most of the women are having polycystic ovarian diseases. But still we need to prevalence rate of types of polycystic ovarian disease such as hormonal versus structural in order to reduce the occurrence of diseases. Thereby it will help the women in all the ways to reduce the gynaecological problems.

Objectives
1. To find out the prevalence of hormonal abnormalities of patients with polycystic ovarian disease.
2. To find out the prevalence of structural abnormalities of patient with polycystic ovarian disease.

3. To compare the prevalence of hormonal and structural abnormalities of patients with polycystic ovarian disease.
4. To associate the prevalence of hormonal abnormalities of patient with polycystic ovarian disease at selected demographic variables.
5. To associate the prevalence of structural abnormalities of patient with polycystic ovarian disease at selected demographic variables.

Hypothesis

H1: There will be a significant difference between the prevalence of hormonal abnormalities of patient with polycystic ovarian disease.

H2: There will be a significant difference between the prevalence of structural abnormalities of patient with polycystic ovarian disease.

H3: There will be a significant difference in the prevalence of hormonal and structural abnormalities of patient with polycystic ovarian disease.

H4: There will be a significant association in the prevalence of hormonal abnormalities of patient with polycystic ovarian disease at selected demographic variables.

H5: There will be a significant association in the prevalence of structural abnormalities of patient with polycystic ovarian disease at selected demographic variables.

Assumptions

It is assumed that,

- The prevalence of hormonal abnormalities of polycystic ovarian disease is more when compared to structural abnormalities of polycystic ovarian disease.
- The prevalence of structural abnormalities of polycystic ovarian disease is more when compared to hormonal abnormalities of polycystic ovarian disease.
- The elevated hormonal levels are ultimately responsible for irregular or infrequent ovulation.
- This may leads to infertility among women with menstrual abnormalities.

Research Methodology

Research methodology is the systematic way to solve the research problem. In this study, non-experimental descriptive research design was used to achieve the objective and to fulfill the need for the study. The investigation was carried out in Gynaecological OPD in SMVMCH. The sample size of the study consists of 100 women with polycystic ovarian disease. Purposive sampling technique was used for this study.

Inclusion Criteria

- Women of age group between 15 to 45 years.
- Women who attending gynaecology opd.
- Women who are willing to participate in the study.
- Women who are obesity and having menstrual irregularities.
- Women who are admitted in gynaecology ward.
- Samples who are available at the time of data collection.

Exclusion Criteria

- Women of age more than 45 years.
- Women who could not able to speak.
- Women who are mentally challenged.

Description of the Tool

The tool consists of two parts,

Part A: Demographic variables which includes age, religion, education, marital status, area of residence, nutritional pattern, age of menarche, flow of menstrual cycle, period of menstruation, weight, and gravida

Part B: Checklist to assess the prevalence of hormonal and structural abnormalities of patient with polycystic ovarian disease.

Table-1: Frequency and percentage distribution of demographic variables among the prevalence of hormonal versus structural abnormalities of women with polycystic ovarian disease.

Table-2: Frequency and percentage wise distribution to find out the prevalence of hormonal abnormalities of women with polycystic ovarian disease.

Table-3: Frequency and percentage wise distribution to find out the prevalence of structural abnormalities of women with polycystic ovarian disease.

Table-4: Comparison between the prevalence of hormonal and structural abnormalities of women with polycystic ovarian disease.

Table-5: Association of prevalence of hormonal abnormalities of patient with polycystic ovarian disease at selected demographic variables.

Table-6: Association of prevalence of structural abnormalities of patient with polycystic ovarian disease at selected demographic variables.

Table 1: Frequency and percentage distribution of demographic variables among the prevalence of hormonal versus structural abnormalities of women with polycystic ovarian disease, n = 100

Sl. No.	Demographic Variables	Frequency (N)	Percentage (%)
1.	**Age:**		
	• 15 to 23 years	42	42
	• 24 to 30 years	31	31
	• 31 to 37 years	14	14
	• 38 to 45 years	13	13
2.	**Religion:**		
	• Hindu	83	83
	• Christian	2	2
	• Muslim	15	15
3.	**Education:**		
	• Illiterate	12	12

	• High school	29	29
	• Higher secondary	24	24
	• Graduate	35	35
4.	**Marital status:**		
	• Married	67	67
	• Unmarried	33	33
5.	**Area of residence:**		
	• Urban	36	36
	• Rural	64	64
6.	**Nutritional pattern:**		
	• Vegetarian	36	36
	• Non – vegetarian	64	64
7.	**Age of menarche:**		
	• < 13 years	54	54
	• > 14 years	46	46
8.	**Flow of menstrual cycle:**		
	• < 3 pads / day	64	64
	• > 4 pads / day	36	36
9.	**Period of menstruation:**		
	• < 3 days	73	73
	• 4 - 6 days	22	22
	• 7 - 9 days	3	3
	• > 10 days	2	2
10.	**Weight:**		
	• Normal	30	30
	• Underweight	7	7
	• Moderate weight	41	41
	• Obesity	22	22
11.	**Gravida:**		
	• Primi gravida	31	31
	• Multi gravida	7	7
	• Others	62	62

Table 2: Frequency and Percentage wise distribution to find out the prevalence of Hormonal abnormalities of women with polycystic Ovarian Disease. n = 100

Sl. No.	Prevalence of Hormonal Abnormalities	Frequency (N)	Percentage (%)
1.	Mild prevalence	11	11
2.	Moderate prevalence	69	69
3.	Severe prevalence	20	20

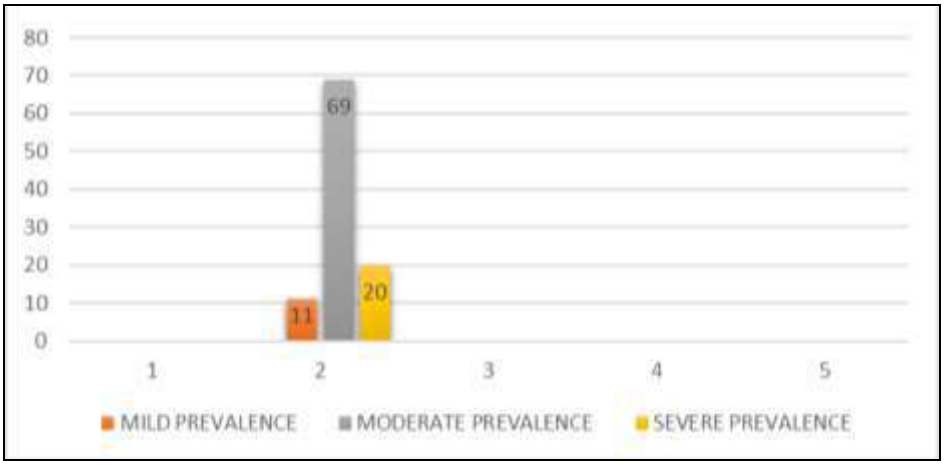

Fig 1: Prevalence of Hormonal Abnormalities

Table 3: Frequency and percentage wise distribution to find out the prevalence of structural abnormalities of women with polycystic ovarian disease. n = 100

Sl. No.	Prevalence of Structural Abnormalities	Frequency (N)	Percentage (%)
1.	Mild prevalence	11	11
2.	Moderate prevalence	61	61
3.	Severe prevalence	28	28

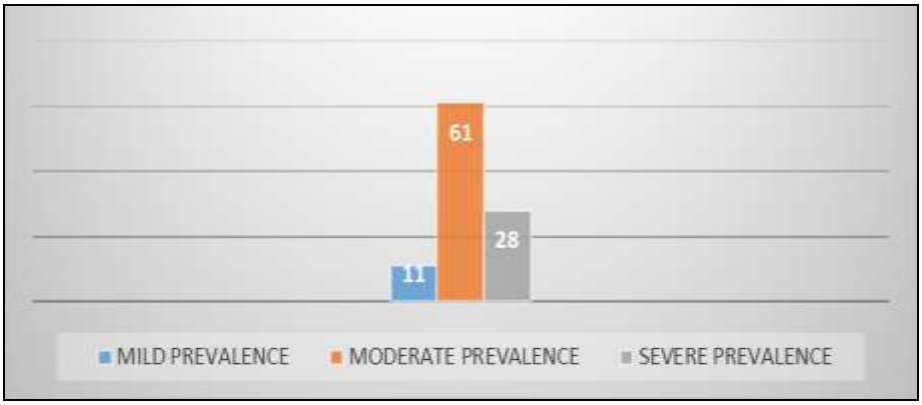

Fig 2: Prevalence of Structural Abnormalities

Table 4: Comparison between the Prevalence of Hormonal and Structural Abnormalities of Women with Polycystic Ovarian Disease. n = 100

Prevalence Of Polycystic Ovarian Disease		Mean	Standard Deviation	T - Test	P - Value
	Hormonal Abnormalities	2.0900	0.55222		
	Structural Abnormalities	2.1700	0.60394	t = - 0. 970	0.874

P < 0.05 level of significant

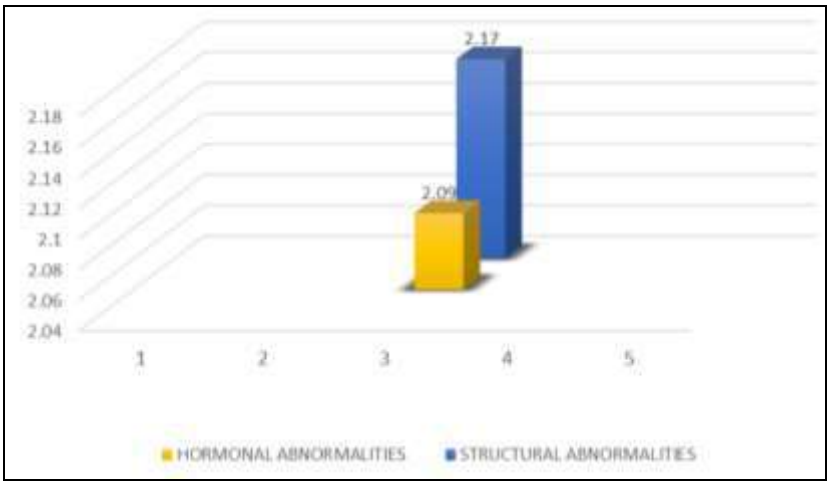

Fig 3: Mean of Hormonal and Structural Abnormalities

Table 5: Association of prevalence of hormonal abnormalities of patient with polycystic ovarian disease at selected demographic variables n = 100

Sl. No	Demographic variables	Prevalence of hormonal abnormalities						CHI – Square
		Mild		Moderate		Severe		
		n	%	N	%	n	%	
1	**Age**							Chi = 19.600 Df = 3, P = 0.003 (S)
	• 15 To 23 Years	3	7.1	34	81	5	11.9	
	• 24 To 30 Years	4	12.9	23	74.2	4	12.9	
	• 31 To 37 Years	3	21.4	8	57.1	3	21.4	
	• 38 To 45 Years	1	7.7	4	30.8	8	61.5	
2	**Religion**							Chi = 8.294 Df = 2 P <=0.081 (NS)
	• Hindu	9	10.8	59	71.1	15	18.1	
	• Christian	0	0	0	0	2	100	
	• Muslim	2	13.3	10	66.7	3	20	
3	**Education**							Chi = 21.459 Df = 3, P = 0.002 (S)
	• Illiterate	3	25	3	25	6	50	
	• High School	5	17.2	16	55.2	8	27.6	
	• Higher Secondary	1	4.2	22	91.7	1	4.2	
	• Graduate	2	5.7	28	80	5	14.3	
4	**Marital Status**							Chi = 6.741 Df = 1 P = 0.034 (S)
	• Married	8	11.9	41	61.2	18	26.9	
	• Unmarried	3	9.1	28	84.8	2	6.1	

5	**Area of Residence**							Chi = 0.398 Df = 1, P = 0.820 (NS)
	• Urban	4	11.1	26	72.2	6	16.7	
	• Rural	7	10.9	43	67.2	14	21.9	
6	**Nutritional Pattern**							Chi= 0.970 Df = 1, P = 0.616 (NS)
	• Vegetarian	3	8.3	27	75	6	16.7	
	• Non - Vegetarian	8	12.5	42	65.6	14	21.9	
7	**Age of menarche**							Chi = 2.463 Df = 1, P = 0.292 (NS)
	• < 13 Years	8	14.8	34	63	12	22.2	
	• > 14 Years	3	6.5	35	76.1	8	17.4	
8	**Flow of Menstrual Cycle**							Chi = 2.221 Df = 1, P = 0.329 (NS)
	• < 3 Pads / Day	9	14.1	44	68.8	11	17.2	
	• > 4 Pads / Day	2	5.6	25	69.4	9	25	
9	**Period of Menstruation**							Chi = 2.597 Df = 3, P = 0.857 (NS)
	• < 3 Days	9	12.3	48	65.8	16	21.9	
	• 4 - 6 Days	2	9.1	17	77.3	3	13.6	
	• 7 - 9 Days	0	0	2	66.7	1	33.3	
	• > 10 Days	0	0	2	100	0	0	
10	**Weight**							Chi = 6.789 Df = 3 P = 0.341 (NS)
	• Normal	2	6.7	23	76.7	5	16.7	
	• Underweight	2	28.6	2	28.6	3	42.9	
	• Moderate Weight	5	12.2	29	70.7	7	17.1	
	• Obesity	2	91	15	68.2	5	22.7	
11	**Gravida**							Chi = 1.410 Df = 2, P = 0.842 (NS)
	• Primi Gravida	2	6.5	23	74.2	6	19.4	
	• Multi Gravida	1	14.3	4	57.1	2	28.6	
	• Others	8	12.9	42	67.7	12	19.4	

P<0.05 Significant *P*<0.01 and *P*<0.001 Highly Significant

Table 6: Association of prevalence of structural abnormalities of patient with polycystic ovarian disease at selected demographic variables N = 100

Sl. No	Demographic Variables	Prevalence of structural abnormalities						CHI – SQUARE
		Mild		Moderate		Severe		
		n	%	n	%	n	%	
1	**Age**							Chi = 4.403 Df = 3, P = 0.622 (NS)
	• 15 To 23 Years	6	14.3	23	54.8	13	31	
	• 24 To 30 Years	3	9.7	19	61.3	9	29	
	• 31 To 37 Years	2	14.3	8	51.1	4	28.6	
	• 38 To 45 Years	0	0	11	84.6	2	15.4	
2	**Religion**							Chi = 1.657, Df = 2 P = 0.799(NS)
	• Hindu	9	10.8	51	61.4	23	27.7	
	• Christian	0	0	2	100	0	0	
	• Muslim	2	13.3	8	53.3	5	33.3	
3	**Education**							Chi = 10.876 Df = 3 P = 0.092(NS)
	• Illiterate	0	0	6	50	6	50	
	• High School	3	10.3	23	79.3	3	10.3	
	• Higher Secondary	3	12.5	15	62.5	6	25	
	• Graduate	5	14.3	17	48.6	13	37.1	
4	**Marital Status**							Chi = 5.088 Df = 1 P = 0.079(NS)
	• Married	8	11.9	45	67.2	14	20.9	
	• Unmarried	3	9.1	16	48.5	14	42.4	
5	**Area of Residence**							Chi = 2.313 Df = 1 P =0.315(NS)
	• Urban	6	16.7	22	61.1	8	22.2	
	• Rural	5	7.8	39	60.9	20	31.2	
6	**Nutritional Pattern**							Chi= 2.995 Df = 1 P = 0.224(NS)
	• Vegetarian	3	8.3	26	72.2	7	19.4	
	• Non - Vegetarian	8	12.5	35	54.7	21	32.8	
7	**Age of Menarche**							Chi = 0.400 Df = 1 P = 0.819(NS)
	• < 13 Years	5	9.3	34	63	15	27.8	
	• > 14 Years	6	13	27	58.7	13	28.3	
8	**Flow of Menstrual Cycle**							Chi = 1.888 Df = 2 P = 0.389(NS)
	• < 3 Pads / Day	5	7.8	40	62.5	19	29.7	
	• > 4 Pads / Day	6	16.7	21	58.3	9	25	
9	**Period Of Menstruation**							Chi = 24.117 Df = 3 P = 0.000(HS)
	• < 3 Days	9	12.3	40	54.8	24	32.9	

	• 4 - 6 Days	0	0	19	86.4	3	13.6	
	• 7 - 9 Days	0	0	2	66.7	1	33.3	
	• > 10 Days	2	100	0	0	0	0	
10	**Weight**							Chi = 25.513 Df = 3 P =0.000(HS)
	• Normal	2	6.7	26	86.7	2	6.7	
	• Underweight	0	0	6	85.7	1	14.3	
	• Moderate Weight	9	22	19	46.3	13	31.7	
	• Obesity	0	0	10	45.5	12	54.5	
11	**Gravida**							Chi = 3.538 Df = 2 P = 0.472(NS)
	• Primi Gravida	3	9.7	21	67.7	7	22.6	
	• Multi Gravida	0	0	6	85.7	1	14.3	
	• Others	8	12.9	34	54.8	20	32.3	

Results

The findings reveals that out of 100 women with polycystic ovarian disease, in that 11 (11%) had mild prevalence, 69 (69%) had moderate prevalence and 20 (20%) had severe prevalence of hormonal abnormalities. In structural abnormalities, in that 11 (11%) had mild prevalence, 61 (61%) had moderate prevalence and 28 (28%) had severe prevalence of structural abnormalities.

When comparing the findings, the structural abnormalities had the highest mean value and standard deviation are 2.1700 and 0.60394 respectively. The hormonal abnormalities had the lowest mean value and standard deviation are 2.0900 and 0.55222 respectively. The overall t value for both hormonal and structural abnormalities was -0.970 and the P – value was 0.874 which indicates that it was not significant at 0.05 level of significance.

In hormonal abnormalities, the chi square test reveals that is statistically significant association between the demographic variables such as age, education, marital status and the remaining variables had no significant association. In structural abnormalities, the demographic variables such as period of menstruation and weight were highly statistically significant and the remaining variables had no significant association.

Conclusion

Therefore, the findings of the study implies that, when comparing the hormonal and structural abnormalities of polycystic ovarian disease, structural abnormalities had more prevalence.

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