IJBPAS, March, 2022, 11(3): 1244-1254

ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

PCOS: HEALTH AWARENESS AMONG WOMEN

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Received 15th April 2021; Revised 18th May 2021; Accepted 25th June 2021; Available online 1st March 2022

https://doi.org/10.31032/IJBPAS/2022/11.3.5950

ABSTRACT

Objective: To determine the social awareness about the polycystic ovary syndrome (PCOS) among the women of various age groups, various professions and educational backgrounds. The aim of the study was to investigate the factors which were responsible for the non-awareness about the syndrome.

Method: Women in the age group of approximately 12-45 years population were contacted through social media, we appealed to them to complete a questionnaire that consisted of self-designed questions related to the PCOS awareness, health checkup, symptoms observed and treatments taken. We used a Socio-statistics chi-square calculator to examine associations between the demographic variables and PCOS symptoms.

Result: The statistical analysis was performed to check the correlation of appearance of symptoms with the perception of the disease, and did they consult with the gynecologist about the symptoms, *P value* found to be *0.001093* which shows that the statistical significant relation between the variables. The women were found embarrassed while sharing about PCOS with their families, the *P value* was found to be *0.00193* which shows significant relation.

Conclusion: Our study found that about half of the women population is perceiving the symptoms of the PCOS but due to unawareness about the disease. Many women ignored the symptoms of PCOS while some of them are not actually aware about the concept of the disease hence there is need of PCOS awareness camps every woman should seek guidance from a gynecologist regarding the symptoms, complications associated with PCOS.

Keywords: Polycystic ovary syndrome, menstruation cycle, gynecologist, Overweight, hirsutism

INTRODUCTION

Polycystic ovary syndrome (PCOS) is an ailment that effects around 10% of women of child bearing age and the most frequent cause of infertility as well as hyperandrogenism (high level of androgens in females) **[1]**. The Rotterdam rules (affirmed by the Australian PCOS Alliance and the US National Institutes of Health [NIH]) are generally seen and used in diagnosing PCOS, which requires two of the going with three features: plenitude androgens, ovulatory brokenness, and polycystic ovarian morphology **[2]**. Other immense appearances join metabolic peculiarities, similar to insulin opposition, dyslipidemia, and type II diabetes. A PCOS is also known as polycystic ovary disease, polycystic ovary issue, Stein-Leventhal condition which is mainly caused by increased level of luteinizing hormone, androgen, or estrogen and shows symptoms like amenorrhea, hirsutism, weight, fruitlessness **[3]**.

Though the diagnosis of PCOS is not yet clear, it is positively multifactorial issue, and it is associated with hormonal irregularities and responsible for metabolic imbalance **[4-6]**. The obesity and PCOS are closely interrelated and obesity increases the chances of PCOS, while sometimes PCOS is also responsible for obesity **[7]**. For managing the PCOS symptoms lifestyle modifications play an important role **[8]**. PCOS related Insulin resistance, hyper-androgenism, can be improved by lifestyle modifications (LSM) such as dietary adjustments, social changes, physical activities and use of drugs like metformin, or bariatric surgery **[8, 9]**. The issue of infertility, hirsutism, and the hormonal imbalance can be resolved by weight reduction **[10-13]**. Ladies with PCOS who are overweight are reported to benefit by LSM that bring about adiposity reduction **[13]** and chances of ovulation **[12]**; but it is not proved if LSM is likewise effective in ladies with PCOS having typical weight **[14, 15]**.

Public consciousness of PCOS is fundamental on the grounds that over segment of the 10,000,000 individuals that have it, are uninformed of it. Mindfulness assists the general population with understanding that manifestations like unpredictable periods and pelvic torment are not something to be disregarded and getting it checked is essential. Though there is no solution for PCOS the symptoms of PCOS can be managed with proper treatments and exercise. The more people that are taught with respect to PCOS the better opportunities for early finding **[3]**.

PCOS is the disease which is not openly discussed among the women and their families. Hence it was important to bring out awareness about such topic among the women. To the best of our knowledge

before this questionnaire there were surveys about PCOS which were about the percentage of women having disease but very few questionnaires were developed to examine the awareness about the disease and reasons behind it. The aim of the study was to investigate the factors which were responsible for the non-awareness about the syndrome.

MATERIALS AND METHODS

Study Design: This study is a research study using survey method. We conducted a survey using self-administered questionnaire delivered through the internet. Data was collected in India from 10th May to 15th May 2021.

Sample and Procedure: The population Included for the study was all the women of the age group approximately 12-50 years. Participants who met the following criteria were included: 1) Girl Students from various fields, 2) Participants who could access the questionnaire, 3) What's app, Telegram users, 3) Women from various professions 4) Participants could submit survey responses using the same IP address only once. The exclusion criteria was Being unable to understand the questionnaire. We had forwarded the questionnaire to different whats'app and telegram groups of women and girls to invite participants. Our questionnaire was set to proceed only when each question was attempted before the final submission. Women who completed the questionnaire were also encouraged to forward the questionaaire to others. We obtained a total sample of 260 responses. We understand the need to protect the respondent's privacy, hence the survey was conducted anonymously.

Measurement Tools: Using the questionnaire, we selected the demographic data, asked self-designed questions related to PCOS. The relationship between the number of symptoms of PCOS observed and perception of the disease among the women, and the awareness about the health checkup and treatments preferred by women was examined by using the Chi-Square Test. The Chi-Square tests for Goodness of fit and independent of variable were used for examination, the observed responses were compared with the expected values, the significance of *P* value was at $P<0.05$. Sociostatistics chi-square calculator was used for the calculations, it is the simple chi-square calculator tests for association between two categorical variables. The variables used were the symptoms observed and perception of disease, priority of treatments chosen, Comfort of women with male gynecologist, as well as priority given to the health check-up done from gynecologist.

RESULTS

Table 1 shows the characteristics about annual health check-up and awareness about the symptoms of PCOS, in terms of

demographic data, and those two variables were compared with age differences among women, their profession and educational status. There were 260 participants in our study out of which,

Table 1 (a) shows 51.8% women did not considered important to get annual health checkup done, and 36.6% women considered it as important but did not go for it. From which according to age factor 22% between age 15-25 and 30% between the age 25-35 didn't go for their health checkup. And according to their profession 17% employed, 20% students and 20% housewives didn't go for their health checkup. And according to educational status those who were graduates or post graduates were partially conscious about health checkup.

Table 1 (b) shows about 30% women did not have any idea about the disease and its symptoms though 70% women well aware of the disease as most of them were students (30%), from age 15-25(34%) and 25-35(32%).When the profession of women compared with awareness about the disease, the students (30.7%) and employed women were found to be more aware than housewives (16.9%). And according to educational status women who were graduates (38%) and post graduates (25%) were more likely to known about disease than less educated women.

Table 2 The irregular menstruation cycle is the symptom of PCOS which was compared using various demographic factors such as age, profession and educational status. Women were asked about their regular menstruation cycle about 59% women having regular menstruation cycle, and remaining women have various menstrual problems like heavy bleeding, low bleeding, and menstrual cramps. The women between the age 25-25 and 25-35 year have problem of heavy irregular menstruation with heavy menstrual bleeding (8.8%) and (5.7%) respectively, the problem of menstrual cramps is also severe in age groups of 15-25 and 25-35 years. Possibly the exposer of stressful environment women who were employed and students more likely to have problem of irregular menstruation with heavy bleeding (9.6%) and (10%) resp. as compared to housewives (5.3%).

Table 3 this table shows the comparison of demographic variables with problem of weight gain in women. It was observed from the survey that about 34.2% women were overweight. Women were asked for steps they had taken to lose weight and whether they have difficulty in staying at ideal weight. Women from the age 15-25 and 25-35 years had the problem of staying at ideal weight (18.4%), (18.8%) resp. hence they taken the various steps like dieting and exercise to lose weight (30.7%)

And (30%) resp. according to profession housewives were more likely to have difficulty in staying at ideal weight (13.4%). 28% Women in student phase taken efforts to lose weight by dieting and exercising. Similarly women who were graduates (36.5%) and post graduates (21%) had taken efforts to lose weight.

Table 4 Shows the two symptoms acne and mood swings those two symptoms were compared with demographic variables like age, profession and educational status. **Table 4 (a)** women were asked about the mood swings and 58.1% were found to have mood swings. According to age factor women between age 15-25 years had (30%) and women between age 25-35 years reported (23%) mood swing problem. An according to profession of the women, women in a student phase having more swings (26.9%) than housewives (13.8%) and employed (17.3%)women. By observing educational status women who were graduates and postgraduate also has mood swings (30.7%) and (21.9%) resp. **Table 4 (b)** Women were also asked about the acne problem and 58.1% were suffering from it. According to age women between age 15-25 years (25.3%) and 25-35 years (28.8%) had acne problems. Women in student phase (23%) from bachelor degree (32.6%) and post-graduation (18%) suffered from acne problems.

Table 5 show response we got regarding various questions, it show that perception of the disease by observing various symptom of PCOS, do they consult with gynecologist regarding symptoms they had observed, and while consulting with the gynecologist do they feel comfortable to talk about such disease with male gynecologist, and treatment options they had chosen to recover from such symptoms. The statistical analysis was done to derive the correlation between appearance of symptoms with the perception of the disease, and did they consult with the gynecologist about the symptoms, *P value* found to be *0.001093* which shows that the statistical significant relation between the variables. Women were asked did they feel comfortable to consult male gynecologist and it was found that they were giving equal preference to male and female gynecologist. And also it was statistically found non-significant relation between variables as *P value* obtained *0.70982*. The women were found embarrassed while sharing about PCOS with their families, the *P value* was found to be *0.00193* which shows significant relation.

Table 1: Awareness about health checkup and symptoms of PCOS

Demographic variables		Get annual health checkup done (a)		Aware about the symptoms of PCOS (b)	
		Yes	No	Yes	No
Age factor (years)	15-25	64 (25)	55 (22)	89 (34.2)	30 (11.5)
	25-35	38 (15)	77 (30)	83 (32)	32 (12.30)
	35-45	6 (2)	15 (5)	11 (4.2)	10 (3.8)
	>45	0 (0)	4 (1)	0	5 (2)
Profession	Employed	30 (11.53)	45 (17.3)	60 (23)	15 (5.7)
	Housewife	25 (9.6)	53 (20.38)	44 (16.9)	34 (13)
	Student	54 (20.7)	53 (20.38)	80 (30.7)	27 (10.3)
Education	High school or less	9 (3.4)	25 (9.6)	16 (6.15)	18 (6.9)
	Bachelor Degree	56 (21.5)	79 (30.3)	99 (38)	36 (13.8)
	Post graduate	41 (15.7)	45 (17.3)	65 (25)	21 (8)
	Doctorate	3 (1.1)	2 (0.7)	4 (1.5)	1 (0.3)

Table 2: Demographic variables of patients (Menstruation symptoms)

Demographic variables		Irregular menstruation with heavy bleeding	Irregular menstruation with low bleeding	Heavy menstrual cramps	Regular Menstruation
Age factor (years)	15-25	15 (5.7)	10 (3.8)	16 (6.1)	78 (30)
	25-35	23 (8.8)	18 (6.9)	14 (5.3)	60 (23)
	35-45	6 (2.3)	3 (1.1)	3 (1.1)	15 (5.7)
	>45	0 (0)	0 (0)	0 (0)	0 (0)
Profession	Employed	25 (9.6)	12 (4.6)	13 (5)	50 (19)
	Housewife	14 (5.3)	10 (3.8)	8 (3)	46 (17)
	Student	26 (10)	12 (4.6)	11 (4.2)	58 (22.3)
Education	High school or less	9 (3.4)	5 (1.9)	3 (1.1)	17 (6.5)
	Bachelor Degree	24 (9.2)	22 (8.4)	10 (3.8)	79 (30.3)
	Post graduate	12 (4.6)	9 (3.4)	9 (3.4)	56 (21.5)
	Doctorate	2 (0.7)	0 (0)	1 (0.3)	2 (0.7)

Table 3: Demographic variables of patients (Weight Gain)

Demographic variables		Overweight	Difficulty in staying at ideal weight	(Diet/Exercise)to lose weight	Not Applicable
Age factor (years)	15-25	42 (16.1)	48 (18.4)	80 (30.7)	67 (25.7)
	25-35	42 (16.1)	49 (18.8)	78 (30)	67 (25.7)
	35-45	9 (3.4)	11 (4.2)	18 (6.9)	10 (3.8)
	>45	2 (0.7)	1 (0.3)	1 (0.3)	3 (1.1)
Profession	Employed	25 (9.6)	33 (12.6)	53 (20.3)	50 (19.2)
	Housewife	31 (11.9)	35 (13.4)	53 (20.3)	47 (18)
	Student	33 (12.6)	45 (17.3)	73 (28)	74 (28.4)
Education	High school or less	13 (5)	13 (5)	24 (9.2)	21 (8)
	Bachelor Degree	44 (16.9)	61 (23.4)	95 (36.5)	91 (35)
	Post graduate	30 (11.5)	37 (14.2)	56 (21.5)	56 (21.5)
	Doctorate	2 (0.7)	2 (0.7)	4 (1.5)	3 (1.1)

Table 4: Demographic variables of patients (Mood swings and acne problems)

Demographic variables		Experience mood swings		Problem of acne	
		Yes	No	Yes	No
Age factor (years)	15-25	78 (30)	41 (15.7)	66 (25.3)	53 (20.3)
	25-35	60 (23)	55 (21.1)	75 (28.8)	40 (15.3)
	35-45	12 (4.6)	9 (3.4)	10 (3.8)	11 (4.2)
	>45	0(0)	4 (1.5)	0 (0)	4 (1.5)
Profession	Employed	45 (17.3)	30 (11.5)	48 (18.4)	27 (10.3)
	Housewife	36 (13.8)	42 (16.1)	43 (16.5)	35 (13.4)
	Student	70 (26.9)	37 (14.2)	60 (23)	47 (18)
Education	High school or less	12 (4.6)	22 (8.4)	16 (6.1)	18 (6.9)
	Bachelor Degree	80 (30.7)	55 (21.1)	85(32.6)	50 (19.2)
	Post graduate	57 (21.9)	29 (11.1)	47 (18)	39 (25)
	Doctorate	2 (0.7)	3 (1.1)	3 (1.1)	2 (0.7)

Table 5: Statistical analysis for correlating the variables using chi-square test, where*p value >0.05:* Significant results)

Demographic variables	Do you think that you may be suffering from PCOS?(perception of developing PCOS by observing symptoms)		*P Value*
	Yes	No	
By observing Symptoms like irregular menstruation, acne, overweight, mood swings Do you consult with gynecologist regarding this	134 (51.5%) 97 (37.3%)	126 (48.5) 163 (62.6)	0.001093
Treatments Consult Gynecologist Ayurvedic Treatment Home Remedies	Have you taken any treatment for PCOS? 70 24 20		<0.00001
Comfort While talking with male gynecologist Comfortable Non Comfortable	Do you feel comfortable while talking with male gynecologist about PCOS? 133 (51.5%) 127(48.5%)		0.70982
Comfort While talking with family members. Comfortable Non Comfortable	Do you feel embarrassed of sharing about PCOS with your family members? 105 (40.4%) 155 (59.6%)		0.00193

Significance of the Study: This is the topic which is less discussed within various families in rural areas. Various women though they have some of the symptoms of the PCOS they are not preferring their check up from gynecologist. It is observed from the study that about 20-30% women actually have no any idea about the PCOS and its symptoms. And those who are well known about the disease also do not prefer their health checkup from gynecologist. The study shows the awareness about the polycystic ovarian disease among the women of adult age.

DISCUSSION

This is the study concerning the PCOS (Polycystic ovary syndrome) among the various age groups of women as well as awareness of the disease among the women of various professions and educational backgrounds. In our study self-designed questionnaire was used for the assessment of awareness in women with polycystic ovary syndrome (PCOS). It included information about women such as their age, profession, income, educational status etc. and about 23 questions were asked. Primarily the questions were about their general health status, knowledge about the PCOS and its symptoms as well as the schedule for their health checkup. After this women were asked about the symptoms such as their menstrual regularities, weight gain, mood swings, acne, facial hairs etc. **[16]** though some women were well known about the symptoms of PCOS they were not consulting to gynecologist and following treatment options. PCOS is the disease which is not openly discussed among the women and their families. Hence it was important to bring out awareness about such topic among the women. To the best of our knowledge before this questionnaire there were surveys about PCOS which were about the percentage of women

having disease but very few questionnaires were developed to examine the awareness about the disease

Our study has total 260 women participants involved from which 51.5 % women were found to have most of the symptoms of the PCOS, though this group has observed the symptoms from among them only 37.3% women had consulted about the problem with the gynecologist. The symptoms of the PCOS are interlink with each other. We found that the low educational level among the women is the major issue for the awareness about such disease, about 30% women did not have any idea about the disease and its symptoms. The risk of PCOS among women with an education level of high school or below was higher than that of those with a bachelor, post graduate and doctoral degree. , women who were well educated who know about the disease and its symptoms also avoided to consult the gynecologist. From the survey it was concluded that 51.8% women did not considered it important even to have primary health checkup done. According to the study conducted by Elsenbruch, S and coworkers, Drosdzol, Aand coworkers found that women suffering from PCOS, acne, hirsutism, and Obesity can influence the feminine Identity of women **[17, 18]** hence study also carried out about the symptoms of PCOS such as weight gain or obesity, from the survey about 34.2% women were found to be overweight. And most of the women from the age 25-25 years and 25-35 years followed diet plans and exercise to lose weight. It has been shown that women having PCOS can adversely affecting their relationship with family and friends, and their leisure and spiritual life due to mood swings such as anger, depression etc. **[19,20]**, about 58.1% women from adult age possess mood swings.

From the study, a significant relationship was observed between the demographic factors like various symptoms observed and consultation about them with gynecologist with the perception of disease, though women perceive the symptoms of the disease they did consult it with the gynecologist, although most of the women prefer the treatment options such as home remedies and Ayurveda treatments. As women are not taking proper steps for PCOS hence they are increasing the PCOS related complications such as endometrium cancer, infertility issue, increasing chances of developing type 2 diabetes, hypertension, anxiety, and heart related problems **[21-24]**.

CONCLUSION

Our study found that about half of the women population is experiencing the symptoms of the PCOS but due to lack of awareness about the disease and its symptoms, most of them are not taking proper treatments as well as advise from gynecologist. At institute level (secondary

education of fields like science, arts, commerce) lectures should be arranged which guide about PCOS. Many women ignored the symptoms of PCOS while some of them are not actually aware about the disease hence there is need of PCOS awareness camps every woman should guide by specialist/gynecologist regarding the symptoms, complications associated with PCOS, what are the primary treatment options, and mainly how to overcome overweight and hormonal imbalance.

ACKNOWLEDGEMENT: The authors wish to thank all the women for participating in this study.

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