

A Cross Sectional Study To Assess The Knowledge Regarding Polycystic Ovarian Syndrome Among Female Medical Students

1.Latha karem S. , 2. Sivakala T. , 3.Kavitha K.

1. M.D, Department of Obstetrics and Gynaecology, Kurnool Medical College, Kurnool, Andhra Pradesh, India.
2. M.D, Department of Social and Preventive Medicine, Kurnool Medical College, Kurnool, Andhra Pradesh, India.
3. M.D.,Department of Obstetrics and Gynaecology, Kurnool Medical College, Kurnool, Andhra Pradesh, India.

Abstract

Context: Polycystic Ovarian Syndrome (PCOS) is a heterogenous chronic endocrine disorder commonly diagnosed in women of reproductive age. The disorder itself and its associated Co-morbidities increase healthcare costs and contribute to reduced quality of life. Global Prevalence of PCOS is estimated to be between 6% and 26%. Early diagnosis of PCOS and Its prompt treatment will help girls to improve quality of life and prevent further health hazards.

Objectives: To estimate the prevalence of PCOS among female medical students, To assess their knowledge regarding PCOS and source of their knowledge.

Materials and Methods: A Cross sectional descriptive study was conducted from October to December 2021 among female undergraduate medical students in Government medical college, Kurnool. After obtaining Institutional Ethical committee (IEC) clearance and informed consent from students, Data was collected by self-administered closed ended questionnaire through Google forms. Data analysis was performed using IBM SPSS version 21. Results were expressed in terms of mean, percentage.

Results: All participants had some knowledge about PCOS but only 66.1% (244) were aware of long-term complications of PCOS and only 76.2% (281) had knowledge regarding role of life style modification in prevention and treatment of PCOS.

Conclusions: Even though the female medical students have some knowledge regarding PCOS, their awareness about the risk factors and complications of PCOS is significantly less. Effective educational intervention can significantly increase their knowledge on PCOS.

Key-words: Female undergraduate medical students, Knowledge, PCOS, Prevalence, life style.

Key Messages: Knowledge of medical students regarding PCOS should be improved in terms of risk factors, complications and treatment options.

Introduction

Polycystic ovarian syndrome (PCOS) is a heterogenous chronic endocrine disorder frequently diagnosed in women of reproductive age. The most commonly used Rotterdam criteria (2003) to diagnose PCOS needs any two of the three following features like: chronic oligo/anovulation, clinical or biochemical evidence of hyperandrogenism, polycystic morphology of ovaries on transvaginal ultrasound. ¹ All disorders causing chronic anovulation and hyperandrogenism should be excluded before confirming the diagnosis of PCOS. PCOS increase the risk for various dermatologic, metabolic, reproductive, oncologic, psychologic aberrations. ²⁻⁵ Most of the times some of the aspects of the condition are not evaluated and explored by the clinician due to lack of adequate knowledge. Global prevalence of PCOS is estimated vary from 6% to 26%. ⁶⁻¹¹ In India, various studies gave prevalence rates between 19.6% to 36%. ^{12,13} The difference in prevalence estimates are because, not all women with the above mentioned criteria do receive a formal diagnosis of PCOS due to lack of awareness among the individuals and the health care providers regarding PCOS. Furthermore, even those who are diagnosed receive little information regarding the long-term complications of the disorder, treatment options available. Psychological support and counselling is also not provided for many of them.

Hence this study was aimed to estimate the prevalence of PCOS among Undergraduate female medical students; and to assess the knowledge and source of information regarding PCOS among the students.

MATERIALS AND METHODS

Study design-Cross sectional study

Study period-October to December 2021,

Study area-Kurnool Medical College, Kurnool.

Study subjects: First year to final year undergraduate female medical students

Inclusion criteria:

First year to final year undergraduate female medical students who were willing to participate in the study were included in the study.

Exclusion criteria:

Female medical students and who were not willing to participate in the study.

Sample size: Sample size was calculated by using, (z value of 1.96 as the degree of accuracy at 95% confidence interval , p=58 %^[14], absolute precision of 10%). Based on this, the sample size was calculated to be 278.

Out of the 420 target population, a total of 369 students who were participated in the survey willingly.

Data collection:

A Pre-designed semi structured questionnaire used to collect the data and the data was collected by self-administered closed ended questionnaire through Google forms.

Statistical analysis: Data was entered in Microsoft office excel version 2016 and Data analysis will be performed on IBM-Statistical Package for the Social Sciences (SPSS)version 21. Results were expressed in terms of Proportions, percentages, mean and SD. Chi-square test was used to test the significance, and P-value <0.05 was considered as statistically significant.

ETHICAL ISSUES: Ethical clearance was obtained from Institutional Ethical committee (IEC) of Kurnool Medical College before starting the study proper. During the study, the purpose of the study was explained to all female undergraduate students and willingness to fill the form was taken as consent to participate in the study.

Results:A total of 369 students were enrolled in the study. The participants were in the age group of 17-24 years. Mean age of the participants was 20.018±1.29years. Among 369 students; 31.2% (115) of them were in the first year, 30.6% (113) were in the second year, and 38.2% (141) were studying final year of their undergraduate medical education. All participants had heard about PCOS. Ten percent (38) of the subjects were already diagnosed with PCOS. (Figure 1) But only 3% (11) were started on medication.

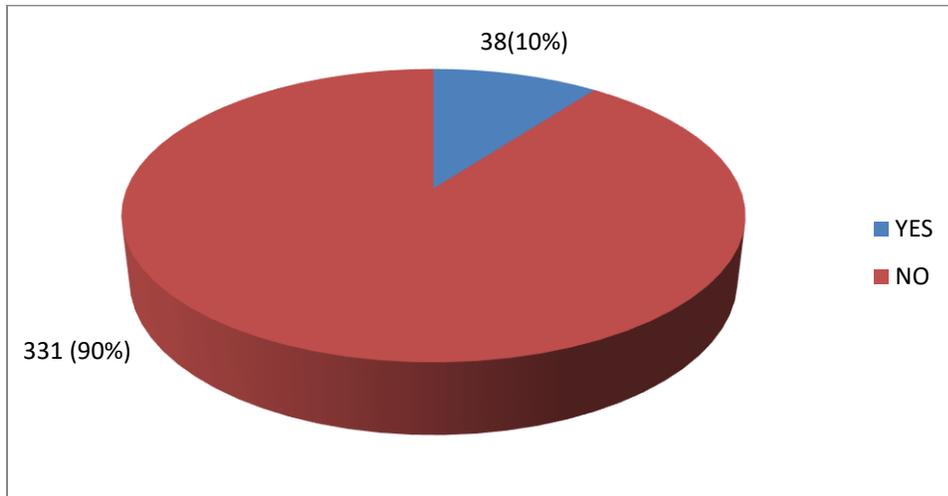


Figure 1: Prevalence of PCOS among study subjects

The frequency of occurrence of symptoms of PCOS in the absence of a formal diagnosis, is mentioned in Table 1. Majority of those who had symptoms, presented with acne.

Table 1: Frequency of different symptoms of PCOS

Symptom	Never	Always	Often	sometimes
Irregular menses	172(46.6%)	23 (6.2%)	20 (5.4%)	154 (41.7%)
Acne	78 (21.1%)	54(14.6%)	53(14.4%)	184 (49.9%)
Hirsutism	267(72.4%)	20(5.4%)	25(6.8%)	57 (15.4%)

Those students who had symptoms suggestive of PCOS underwent some kind of investigation more frequently compared to those who were asymptomatic. Among study subjects, 14.4% (53) of students got their hormone level tested, of which 1.9 % (7) had high androgen levels. Nearly 26% (95) had undergone ultrasonographic evaluation of ovaries at some time or the other.

Following investigation, significant number of those with complaint of hirsutism (22 out of 102; p0.001), irregular menses (37 out of 197; p 0.00), acne (31 out of 291; p0.00) were diagnosed with PCOS as compared those who were asymptomatic.

Nearly 50%(183) of them had known a friend or family member diagnosed with PCOS. There were 39% (144) of students with family history of diabetes and 1.1% (4) students were already diagnosed with diabetes and started on treatment.

Though all of the participants had heard about PCOS, only 76.2% (281) of them were aware of the role of life style modification in the treatment of PCOS. Out of the 38 students already diagnosed with PCOS, significantly more number (28) of students were aware of the role of diet, exercise and medication in the management of PCOS (p value 0.04). Non vegetarian diet appears to increase

the risk of developing PCOS significantly as compared to vegetarian diet. Out of the 38 cases of PCOS, 31 were taking mixed diet as compared to only seven subjects who were vegetarian (p value 0.0308).

As indirect evidence of their lifestyle, the questionnaire included assessment of their body mass index (BMI), diet and awareness regarding change in their weight during Covid-19 lockdown. BMI of 50.7% (187) was falling in the normal range. 30.6% (113) had BMI falling in the obese category. Nearly 18% were overweight and only 0.8% (3) of them were underweight. Regarding change in weight during Covid-19 lockdown, response is as shown in the Table.2. Overall 48.5% (179) gained weight whereas 12.7% (47) lost weight. Only 5.2% (19) did not pay attention to observe the alteration in weight during this period. Most of the students were taking mixed diet, only 4 (1.1%) were vegan.

Regular physical activity undertaken more than 10 hours per week appears to decrease the risk of developing PCOS significantly as compared to exercise of less than 5 hours or 5- 10 hours per week. Only 2 subjects among the 38 PCOS undertook physical exercise more than 10 hours per week as compared to 8 subjects who performed 5-10 hours per week and 28 subjects who exercised less than 5 hours per week (p0.041).

Table 2: Physical activity Vs PCOS

Physical activity	Diagnosed with PCOS	Normal	Total (%)	
<5hrs/week	28	188	216 (58.5%)	χ^2 *: 6.004 P: 0.04*
5-10 hrs/week	8	133	141(38.2%)	
>10 hrs/week	2	10	12(3.3%)	
Total	38 (10.3%)	331 (89.7%)	369 (100%)	

χ^2 *: Fisher's exact test P value*: Significance

Only 66.1% (244) subjects were aware of the long term complications of PCOS like infertility, type II diabetes, dyslipidaemia, hypertension, endometrial cancer, etc in the long run.

After completing the survey, 90.8% (335) of students felt that they gained more knowledge about PCOS. All of them felt that it is important for adolescent and young adult females to have knowledge about diagnosis, treatment and preventable long- term complications of PCOS.

When questioned regarding their preferred source of information to improve their knowledge about PCOS, their response is as shown in Figure 2. Majority of them preferred to obtain knowledge through health care professionals.

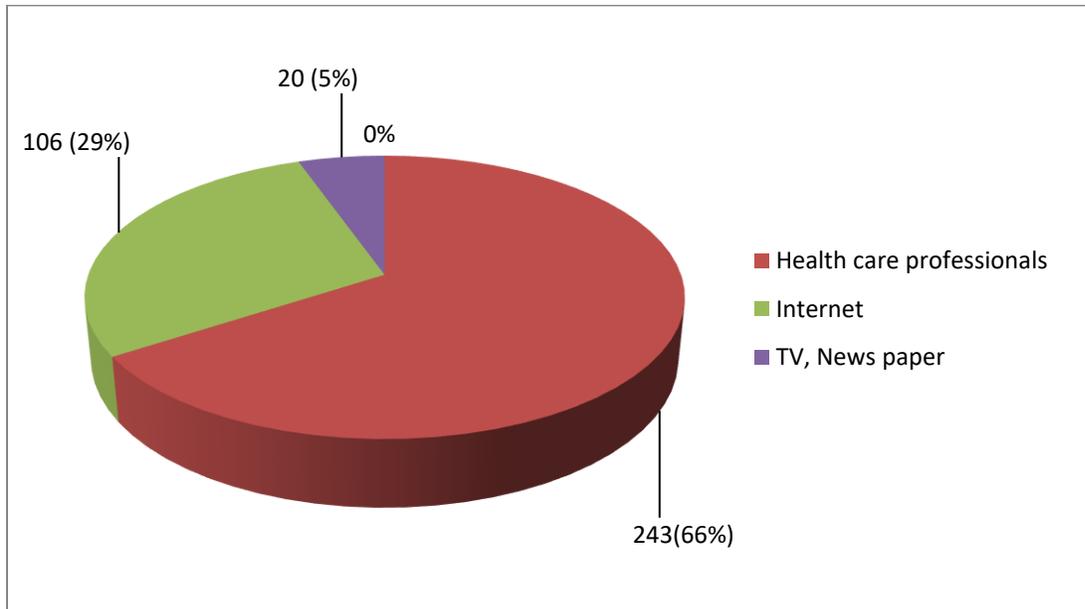


Fig 2: Sources of health information among participants.

Discussion: The present study included 369 participants from 17 to 24 years of age. Prevalence of PCOS was found to be 10% (38) of which only 3% (11) were on treatment for the same. The findings are similar to the one conducted by Hamyel et al¹⁵ among female undergraduate medical students in Pakistan. Most of the subjects (99.28%) were in the age group of 17 to 24 years. Though the prevalence of PCOS was 11.2% which is nearly similar; a greater number of them were on treatment 41.9%, as compared to only 3% in our study.

Although the aetiology of PCOS is not completely understood yet, PCOS is considered a multifactorial disorder with various genetic, endocrine and environmental abnormalities.¹⁶ In the recent years, obesity has become a very common health concern world-wide. This has driven a rise in the prevalence of obesity-related co-morbidities, including PCOS. Prevalence of obesity in our study population was about 30.6%. This is significantly less compared to the prevalence of 65% seen in the study conducted by Surekha Kamath et al.¹⁷ 13.21% of obese subjects were diagnosed with PCOS in our study. A study conducted by Gupta M et al.¹⁸ among young college girls in central India revealed high BMI is strongly associated with PCOS. Prevalence of PCOS among those with BMI more than 25Kg/m² was 7.6% as compared to 0.6% in those with BMI below 25Kg/m².

Sofia¹⁹ in his study, reported that Polycystic ovary syndrome is an independent risk factor for Type II Diabetes (T2D), even after adjustment for BMI. Women with the hyper-androgenic PCOS phenotype face an even higher risk of T2D than those with the normo-androgenic PCOS phenotype. Abdul et al²⁰ reported prevalence of PCOS was higher in women with diabetes than in non-diabetic subjects (37.1% vs.25%). Diabetes plays a central role in pathogenesis of androgen excess in PCOS.²¹ This highlights the possibility of genetic predisposition of people with such family history to PCOS.²² In our study, 47.36% of cases of PCOS had family history of diabetes,

as compared to 29.68% in a study conducted by Subhasree et al.¹⁴ In a study conducted by Hamyel,¹⁵ 63% had family history of diabetes, hypertension or endocrine disorders.

Most of the times, PCOS is not diagnosed formally; but the subjects may have symptoms related to PCOS. Haq NNU et al²³ observed that irregular cycles, oily skin, acne and hirsutism are symptoms of PCOS. In our study, 78.9% (291) students complained of acne. This is similar to the prevalence of acne to the extent of 55.4%, in a study conducted by Hamyel et al ¹⁵and 75.5% as observed by Upadhya JJ.²⁴In a study conducted by Jaya Patel,²⁵ 78.9% of the subjects complained of acne and 13% had complaint of hirsutism. In a study conducted by Hamyel et al ¹⁵37.1% had complaint of irregular menstrual cycles as compared to 53.3% in our study. Hirsutism was found in 50.7% ¹⁵as compared to only 27.6% in our study. They reported that 36.3% presented with weight gain,¹⁵ whereas 48.5% of our subjects had a tendency to gain weight.

Though all students had some knowledge about PCOS in our study, only 76.2% (281) were aware of role of life style modification in the treatment of the condition. Hamyel¹⁵ reported that 74.5% of participants had heard about PCOS. Gupta N et al¹⁸ reported lack of awareness among majority of college girls (78.4%) of central India, though the prevalence of PCOS was 8.2% in the study population. In a study conducted by Jaya Patel,²⁵41% were aware of PCOS but out of these, 46% were unaware of the role of life style changes in pathogenesis of the condition. Subhasree¹⁴ observed that 92.7% of medical students were aware of PCOS and 36.45% also knew that this is heritable. In addition, 55.72% were aware that this could lead to type II DM. Majority of them (88.54%) agreed that exercise and change in diet plan decreased symptoms of PCOS. Pitchai et al²⁸ observed that 62% were aware that exercise helps in the management of PCOS. Sasikala²⁹ found that 89.8% of the subjects were aware of PCOS and almost all of them were aware that life style modification is the first line of management of the same. Upadhya²⁴ concluded that 72% of the participants were aware of PCOS. Sabita and Sunanda³⁰ found similar results of 76% having average knowledge and 10% with good knowledge. But Ansari et al³¹ found in their study that only 10% have knowledge about PCOS which matches with the observation of Hansa et al³² who concluded that 78% are unaware.

66.1% (244) of subjects in our study were aware of the long term complications of PCOS. Hussain et al³³ found that 91% of participants agreed that PCOS can cause infertility. Sasikala²⁹ reported that 84.09% of subjects knew that PCOS can cause infertility and 70.45% were aware of metabolic syndrome. Alessa et al³⁴ found that many participants were aware of complications of PCOS like breast and uterine cancer, hyperandrogenism, anxiety and psychological disturbance. Huq N et al²³ reported that 40.6% knew that hormone therapy can be used in the treatment of PCOS.

Regarding source of knowledge about the condition, 66% (243) of the participants preferred to learn through health care workers, 29% (106) wanted to know through internet. Only 5% (20) wanted to improve their knowledge through newspaper and television. Pitchai et al²⁸ also reported that only 5% of the participants preferred doctor as the source of information and 22%

wanted to depend on internet. Hamyel¹⁵ reported that 42.2% gained knowledge through social media and internet. A study performed on PCOS in adolescents in Rotterdam showed that 11.5% gained knowledge from a doctor and 5% learnt from internet. Subhasree¹⁴ concluded that 20.83% of participants gained knowledge from doctor and an equal percentage, from someone who has PCOS. 16.14% learnt from magazines or books and an equal percentage from internet. 94.53% said that doctors were their major source of knowledge.

Conclusion

Even though the female medical students have some knowledge regarding PCOS, their awareness about the risk factors and complications of PCOS is significantly less. Effective educational intervention especially for medical students can improve their knowledge in the primary prevention, early diagnosis and prevention of complications of PCOS.

Recommendations

- More such multi centric studies should be conducted to find out more PCOS cases so that complication later in life due to PCOS will be prevented.
- Preventive health education should be included in the high school curriculum which will provide an awareness towards the disorder, lifestyle modification and dietary habits.
- There is a need for intensified efforts in early detection and periodic monitoring more so in obese.

Limitations of our study

In view of Covid-19 pandemic, this study was conducted with self administered questionnaire using google forms. Some of the students did not show willingness to participate, may be due to lack of knowledge regarding the importance of the disorder in day-to-day life. It would have been more realistic if it were conducted in a classroom setting with an educational intervention including a pre lecture and post lecture assessment. This would have caused them grow more curious to gain more knowledge regarding the condition in all spheres.

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