

# Awareness of Polycystic Ovarian Disease: Knowledge and Presence of Presenting Symptoms

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## ABSTRACT

**Aim:** To assess the levels of awareness of polycystic ovarian disease and presence of symptoms among female staff and student nurses

**Study design:** Cross sectional survey

**Place and duration:** Shaikh Zayed Medical Hospital Lahore from 1<sup>st</sup> June 2017 to 31<sup>st</sup> July 2017.

**Methods:** Two hundred and one female staff and nurses were included. A structured, self-administered questionnaire was used to gather information on socio-demographic characteristics and level of awareness about polycystic ovarian disease and presenting symptoms.

**Results:** There were 68.1% student nurses and 31.9% staff nurses. The mean age was  $22.43 \pm 6.66$ . The mean BMI was  $1.88 \pm 0.637$ . The mean awareness score was  $1.75 \pm 1.448$ . The mean symptom score was  $1.239 \pm 1.35$ . P score was found to 0.045 and statistically significant.

**Conclusion:** There was a statistical difference between awareness levels and presence of symptoms. Hence there is a need to increase the levels of awareness of polycystic ovarian disease in order for early diagnosis and prevention.

**Keywords:** Polycystic ovarian disease, Anovulation, Infertility, BMI, Awareness

## INTRODUCTION

Polycystic ovarian disease (PCOD) is a common endocrine disorder in females of reproductive age and is nowadays the most common cause of infertility due to anovulation.<sup>1</sup> It was first recognized by Stein and Leventhal in 1935. Numerous studies have reported an increase in the prevalence of PCOS in the past years. PCOD affects the life of women of reproductive age as it affects fertility of women in their child bearing ages and the physical appearance as it causes acne, alopecia, hair growth on face etc. and therefore should be addressed.<sup>3</sup> The prevalence of PCOD in Pakistan is 20.7%.<sup>4</sup> The prevalence of PCOD is found to be 10% around the world while its morphology is seen on ultrasound in 22 % of women.

It is a heterogenous disorder in which both increased ovarian androgens and possible adrenal and metabolic disorder exists and it is associated with infertility, menstrual irregularity, hirsutism etc.<sup>5,6</sup> There is no exact cause known for the development of this disease. It may be a result of genetic predisposition present in the person and its symptoms are aggravated because of environmental factors and lifestyles<sup>4</sup>. It includes hyperandrogenism and multiple ovarian cysts.

Polycystic ovarian disease is clinically expressed via many signs and symptoms, the main being infertility and menstrual irregularity<sup>5</sup>. Others include acne, weight gain, hirsutism, irritability and pigmentation. Infertility may be defined as the inability of a woman to reproduce by natural means or someone who is unable to conceive and carry a pregnancy to full term.<sup>3</sup> Obesity is of abdominal type and is present in varying degrees in different patients (ranging from 10-50%) and enhances both the features of insulin resistance and is associated with reproductive dysfunction<sup>6,7</sup>. It contributes to the pathology of PCOD and

50% of affected females are obese. BMI is a tool that can be used to measure obesity levels<sup>8</sup>. A BMI of greater than 30 indicates obesity which is considered one of the causes as well as symptoms of PCOD.<sup>9</sup> PCOD leads to increased androgen levels resulting in increased acne and hair growth in women<sup>5,6</sup>. Patient may present with worsened acne in relation to the menstrual cycle. Hair growth is found mostly on the thighs and towards the naval<sup>8</sup>.

Polycystic ovarian disease is not known to be because of any single cause. Hence there is no single diagnostic criterion sufficient for the diagnosis of PCOS. The three principal features that form the basis of these criteria including hyperandrogenism, ovulatory dysfunction and presence of cysts. These features are included in the criteria of National Institute of Health (NIH) 1990, Rotterdam 2003, and Androgen Excess Society 2006<sup>10</sup>. Mainly the Rotterdam criteria is used around the world for PCOS diagnosis<sup>11</sup>. Diagnostic tests that were included in the survey were ultrasound, laparoscopy and hormonal investigations.

Patients of PCOD are at an increased risk of ovarian and breast cancers<sup>5,12</sup>, diabetes type 2, coronary heart disease, dyslipidemia and hypertension<sup>12</sup>. Pakistan has witnessed a 22% rise in women suffering from PCOS. This is associated with the fact that present population has very little knowledge about this syndrome. There is a need to increase the awareness about this syndrome as to avoid the infertility problems and other associated factors in the future. Nurses are an integral part of the healthcare system. Due to their position in the healthcare system they are able to provide comprehensive care to young girls suffering from this syndrome. An increase in their knowledge about PCOS will subsequently increase the knowledge of adolescent girls and give them an opportunity to change their lifestyle and reduce the risk.

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## MATERIALS AND METHODS

A cross sectional study was conducted on a population of 201 nurses and female staff who were either studying or working at Shaikh Zayed Medical and Dental College. In order to carry out this research a self-constructed and self-administered survey was conducted.<sup>9</sup> The study was conducted on the nurses who were either studying or working at Shaikh Zayed Medical and Dental Hospital by using simple random sampling technique. The research population was selected on basis of geographical convenience and administrative convenience. 266 female staff and nurses were included.

The eligibility criteria consisted of nurses who were of reproductive age, had achieved their age of menarche and all those who were married or unmarried. Menopausal women, pregnant women and women who had undergone hysterectomy were excluded. Majority of the participants were students who were studying at Shaikh Zayed Medical College and practicing at its affiliated hospital. A self-structured, purposely designed questionnaire was used to assess the level of awareness of Polycystic Ovarian Disease and the presence of presenting symptoms. Eligible nurses were conveniently selected after taking verbal informed consent in the presence of a witness. The investigator obtained permission from the authorities of the college, prior to the data collection and assured confidentiality to the subject to get their cooperation and explained the purpose of the study. Questionnaire was given to the selected nurses and the researchers explained the questionnaires to them to facilitate their understanding of the questionnaire. The basic demographic variables were covered including age, occupation, height and weight. BMI was calculated in order to observe obesity levels. The survey was divided into two portions. One which assessed the awareness levels of PCOS and the other which assessed the presence of presenting symptoms. Awareness was assessed on the basis of four questions, 1) knowledge 2) causes of PCOS 3.) prevention and 4) diagnostic tests of PCOS. The awareness levels were scored in each participant. A score of 0-4 was given to assess awareness levels. Each of the scores was divided into knowledge levels. The survey contained 10 variables on which the research was based on. The survey was conducted through a questionnaire which inquired about 1.) regularity of their menstrual cycle; 2.) presence of hirsutism 3) dietary intake 4) presence of acne 5.) presence of pigmentation 6.) irritability 7.) weight gain 8.) diagnosis of PCOS. The women were scored according to the presence of presenting symptoms. Each symptom was given a score of 1 and if the symptom was absent a score of 0 was given. A total score of 7 was kept and those nurses who had 4 or more than 4 symptoms they were told to consult a doctor for diagnosis of PCOS. Each symptom was judged after questioning and assessing whether there was a significant change from their normal state. An average adult tends to gain 0.5 to 1 Kg per year. The participants were asked if they documented their weight changes and a weight increase of 10 kg or more in a period of 1 year was considered significant.

At the end of the survey the participants were given knowledge of what had been deduced. The results were

analyzed through descriptive and inferential statistics. To test and analyze the statistical difference in awareness levels of PCOD chi square test was applied.

## RESULTS

There were 137 (68.1%) student nurses and 64 (31.8%) staff nurses. The age of the respondents was divided into five groups ranging from 1.) 15-25 yrs. 2.) 26-35 yrs. 3.) 36-45 yrs. 4.) 46-55 yrs. 5.) 56-55 years. The mean age of the respondents was found to be  $22.43 \pm 6.66$  with a range of 16-65. Thirty-six (17.9%) of the nurses were married, three (1.5%) were widowed and 162 (80.6%) were unmarried. A mean BMI of  $1.88 \pm 0.637$  with a range of 1-4 was calculated. There were 50 (24.9%) people who had a BMI of less than 18.5. Nurses who had a BMI in the normal range were 129. Four people had a BMI of above 30.

Awareness levels were assessed in the nurses through four basic questions. The percentage who had knowledge about polycystic ovarian disease was 68.2% and who had no knowledge was 31.8%. The nurses who knew about the causes of PCOS were 26.4% and 73.6% had no knowledge of the causes of PCOS. Out of 201 nurses, 58.2 percent were aware of the symptoms of PCOS while 41.8 % did not know of the symptoms of PCOS. Sixty-Nine point two percent of the nurses had knowledge of the diagnostics tests of PCOS while 30.8 % had no knowledge of the tests. The information of nurses about PCOS was from different sources including teachers (34.3%), friends (10.4%), doctors (11.9%), internet (14.9%). There were 28.4% were those who had no information about the source of PCOS.

Awareness levels were also scored giving knowledge of PCOS, its causes, symptoms, prevention and diagnostic tests a score of one. The total score was of four. Those who had a score of 0, meaning they had no knowledge were 30.8%. Those that had a score of one amounting to poor knowledge levels were 8.5%. Those who had average knowledge with a score of 2 were 34.3%. Those who had good knowledge with score of 3 were 7.5% while 18.9% had excellent knowledge having a score of 4. The mean awareness score was  $1.7512 \pm 1.448$ .

According to our survey there were five people who claimed to be a diagnosed PCOS patient, while 196 were those who had not been diagnosed. The presence of presenting symptoms was given scores from 0-8 where 0 was said to be no symptoms and a score of 1 was given for each symptom present. There were no symptoms present in 78 (38.8 %) nurses, one symptom was present in 53(26.4%) nurses, two in 34 (16.9%) nurses, three in 22 (10.9%) nurses, four in 11(5.5%) nurse, five in one (0.5%) nurse, six in one (0.5%) nurse and seven in one (0.5%) as shown in figure 3. There were different frequencies of each of the symptoms. Nurses who had a family history of the disease were 7%. Hair growth was present in 12.9% of the participants while irritability was present in 15.9%. Period irregularity in 23.9%, pigment changes were present in 21.4%, weight gain in 18.4 % and acne was present in 24.4% of the individuals. The mean symptom score was  $1.2381 \pm 0.350$ .

The difference in awareness and presence of symptoms were found to be statistically significant with a P

value of 0.044. (as shown in figure). Acne was found to be the symptom that was most commonly present in the nurses followed by menstrual irregularity.

Table 1: Frequency of body mass index

BMI (kg/m <sup>2</sup> )	Frequency
<18.5 (underweight)	50
18.5-24.9 (normal)	129
25-29.9 (overweight)	18
>30 (obese)	4

Table 2: Scoring of awareness

Scoring	Level of awareness	Score
0	No knowledge	62(30.8%)
1	Poor knowledge	17 (8.5%)
2	Average knowledge	69(34.3%)
3	Good knowledge	15(7.5%)
4	Excellent knowledge	38(18.9%)

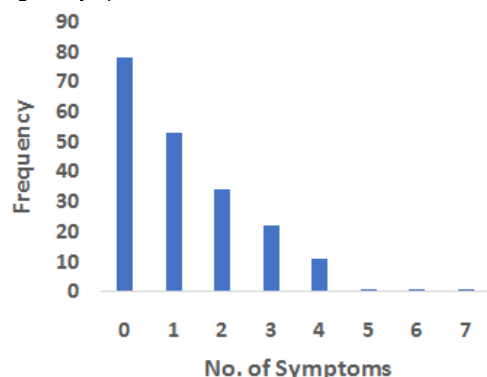
Table 3: Symptom score

Score Range	Probability of PCOS	Frequency
0-2	Low probability	165(82.1%)
3-5	Average probability	34(16.9%)
6-7	High probability	2(1%)

Table 4: Awareness of symptoms among all the respondents

Awareness	Symptoms		P value
	Yes	No	
Yes	183	776	0.0445
No	66	383	

Fig. 1: Symptoms of PCOS



## DISCUSSION

PCOD is a disease that is nowadays common in women and is the leading causes of infertility nowadays.<sup>1</sup>PCOS symptoms involve both endocrine and the gynecologic system. It is characterized by chronic anovulation and hyperandrogenism. In a clinical setting, it is presented with the infertility, hirsutism or alopecia, oligo or amenorrhea and acne. It is often associated with impaired glucose tolerance leading to an increased risk of morbidity and mortality from type 2 diabetes mellitus.<sup>12</sup> This syndrome can increase the risk of hypertension, dyslipidemia, type 2 diabetes, cardiovascular diseases and even endometrial cancer according to a study stated Garad et al.<sup>3</sup>Hair loss, acne and other symptoms of PCOS can lead to poor self-

esteem in women. It has a prevalence of 10% around the world while in Pakistan it has a prevalence of 20.7%.<sup>4</sup> Many studies have been recently conducted to assess the awareness levels of PCOD.

The mean age of our respondents was 22.43±6.66. In our survey 24.9% of the nurses had a BMI that was considered to be underweight, 64% had BMI in the normal range, 9% had a BMI in the overweight range and 2% had BMI that was in the obesity range. Similarly, a study held in India on awareness levels of girls of reproductive years stated that 51% of the girls had normal BMI. In contrast to our study 16.5% of the girls were obese in the study conducted by Upadhye<sup>9</sup> and only 13% were underweight. This difference may be due to difference in dietary intake and physical activity as the participants were of different geographical locations.

In our study there were 62% people who had no knowledge of PCOS in contrast to the study conducted by Upadhye<sup>9</sup> in which only 35% of the females had no knowledge of PCOS. This may be due to the fact that while our study group was only nurses Upadhyes study group consisted of females of reproductive years resulting in greater amount of diversity. There were 8.5% of nurses who had poor knowledge of PCOS, 34.3% had average knowledge, 7.5% had good knowledge of PCOS and 18.9% had excellent knowledge of PCOS. The mean awareness score was 1.75±1.45. Hence it was discovered that there were a higher number of nurses (34.3%) who had average knowledge of PCOS.

Symptom scoring was done according to the number of symptoms present in each of the participants. There were 165 nurses (82.1%) who had 0-1 symptoms present which could be indicative of the fact that there was a low probability of developing PCOS. There were 34 nurses (16.9%) who had 3-5 symptoms present which is indicative of the fact that there was a good probability of developing PCOS. While those that had 6-7 symptoms present (1%) had a high probability of developing PCOS. The two symptoms that were present in most of the participants were acne (24.4%) and menstrual irregularity (23.9%). According to Upadhyes study there were 33.5% of participants who had acne while only 16% had menstrual irregularity<sup>9</sup>. There was a higher percentage of nurses who had only zero to one symptoms hence a low probability of attaining PCOS. The study results indicate a need for increase in the knowledge of PCOS so that there is a decrease in its incidence. There is a need to emphasize the fact that anyone who has any two symptoms present should consult a doctor for early diagnosis and prevention. To emphasize the importance of knowledge of PCOS and its symptoms further studies should be carried out as well.

## CONCLUSION

The study revealed that the majority of the nurses were unaware about PCOS. Five of them were diagnosed. Majority of them had two symptoms present. The study also highlights that there is a potential of many of the nurses to develop PCOS. It is also concluded that there is a need to increase awareness levels amongst women of Pakistan in order for early prevention and diagnosis.

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