Awareness and features of PCOS in students of AlMaarefa University 2019 – 2020

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Abstract— PCOS affects all women of reproductive age, especially adolescents. In KSA, the estimated prevalence of PCOS was 53.7%. The feasibility of conducting such a study justifies the need for providing an opportunity for early detection and prevention of morbidities among adolescents. Objective: The aim of this study is to identify the awareness and features of PCOS in students of AlMaarefa University, Riyadh. It is an observational descriptive cross-sectional study design of 255 female students based on a questionnaire consisting of 3 sections: demographic data, knowledge and quality of lifestyle. All data was cleaned, coded, and entered using PSPP. It was found that 64% of PCOS cases had positive family history compared to 32% of non- PCOS and 11% of those not tested for PCOS. (p-value: 0.000). Regarding overweight students, most of them are not tested students 11%, coming after 8% with PCOS and 2% with non-PCOS. It was found that 21% of medical students have excellent knowledge of PCOS symptoms compared with 6.5% of other specialties. Students with a positive family history are more likely to get PCOS. Excellent level of knowledge regarding PCOS was highly associated with the medical field of the students.

Index Terms— Acne, Hirsutism, Infertility, PCOS

1 INTRODUCTION

Background

Polycystic Ovary Syndrome (PCOS) is one of the most common endocrine disorders in women of reproductive age. The symptoms typically associated with PCOS are amenorrhoea, oligomenorrhoea, hirsutism, obesity, subfertility, anovulation and acne. Women with PCOS may display a number of metabolic and cardiovascular abnormalities and several psychological disorders such as depression, anxiety, marital and social problems and sexual impairment. The main cause of the PCOS is unknown but studies say genes are involved. The familial incidence of PCOS is established well and its prevalence differs from different countries and ethnicities. PCOS is diagnosed by biochemical abnormalities on investigation or polycystic ovaries by transabdominal or transvaginal ultrasound. Correcting diet and incorporating exercise are the first line of treatment. Insulin-sensitizing agents, oral contraceptives, spironolactone, and topical eflornithine can be used in patients with hirsutism.

Problem statement

Prevalence estimates of PCOS are highly variable, ranging from 2.2% to as high as 26%, globally. Prevalence in Middle Eastern countries is found to be: 1990 NIH 6.1% 95% interval: 5.3-7.1%; 2003 Rotterdam 16.0% 95% interval: 13.8-18.6%; 2006 AES 12.6% 95% interval: 11.3-14.2%. In a 2017 study conducted in KSA on Saudi girls, the estimated prevalence of PCOS was observed to be 53.7%. PCOS affects all women of reproductive age but studies have shown increased incidence in adolescents and young adults. Infertility was found to have negative effects on marital relations as spouses request divorce.

Justification

The feasibility of conducting such community-based study justifies the need to upscale this effort to get an overall estimate of the disorder in a diverse sociocultural and economic background, providing an opportunity for early detection and prevention of morbidities among adolescents and young women.

Hypothesis

Women with PCOS when compared to healthy women, are more likely to have an unhealthy diet, less physical activity, augmented psychosocial disturbances and marital issues due to infertility.

Objective

To identify the features of PCOS amongst female students of AlMaarefa University, Riyadh and their awareness regarding PCOS.

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METHODOLOGY

Study Approach:

Study design:
It is an observational descriptive cross-sectional study design (2019-2020). Study Area and population:
The study took place in Medical students in AlMaarefa University for science and Technology in Al-Diriya, Riyadh, Kingdom of Saudi Arabia. AlMaarefa University is a private establishment of higher education. Females of all levels and all colleges: medicine, pharmacy, nursing, computer science and information system were targeted.

Sample size and technique:
The data was collected from 216 students by non-probability quota sampling technique including the preparatory year students excluding male section.

Data needs:

Data Collection Tools:
The study was based on a questionnaire that is prepared especially for it. It consists of 3 sections: demographic data, knowledge and quality of lifestyle. The questionnaire is att tached as annex I.

Definition and procedure:
Scores of knowledge (out of 9):

- >6 correct answers: excellent knowledge 3-5 correct answers: moderate knowledge
- <3 correct answers: poor knowledge
- Score for effects on quality of lifestyle (out of 21):
- >12: strongly affected
- 7-11: moderately affected
- <7: not affected to a great extent

Data Collection Method:
It was an electronic questionnaire written in English and Arabic. The link was distributed via MUST email.

Data analysis & presentation:
All data was cleaned, coded, and entered using PSPP. The results were expressed in tables and graphs as frequencies and percentages (as shown in dummy table annex II). Suitable statistical tests were used.

Ethical consideration:
The protocol of the study was reviewed and approved by the Institutional Review Boards of the Faculty of Medicine, AlMaarefa University. Permission was taken the same time the participants opened the questionnaire link. The data was kept confidential secured to maintain the privacy. Moreover, data was only used for this research.

RESULTS

PCOS was positive for 19%, negative for 10% and not tested for 70%. Of the total, family history was positive for 23% and negative for the remainder. It was found that 64% of PCOS cases had positive family history compared to 32% of non-PCOS and 11% of those not tested for PCOS. This variation in the proportions of positive family history among the respondents was statistically highly significant. (p=0.0000)

It was found that (93%) of PCOS cases were the age of 21 and above, 91% of NON-PCOS and (17%) of those Not Tested for PCOS. It was found that 6.90% of PCOS cases were below the age of 21, 9.20% of NON-PCOS and 84% for Not Tested.
This variation in the proportions of students above the age of 21 was statistically higher. (p= 0.0004). PCOS was positive for 19.46 %, negative for 10.18% and not tested for 70.37% of the total. 69% students from medicine college had PCOS and not too significant from the rest of the colleges. 72% medicine students do not suffer from PCOS, whereas only 28% from the rest of the colleges, implying a clear link between the awareness of disease and its occurrence. It was found that 18% of PCOS cases were single compared to 10% of non-PCOS and 71% not tested for PCOS. The variation among the respondents of those single was not significant (p=0.0739). Regarding married women, 45% were PCOS, 9% not PCOS and 45% not tested for PCOS.

11% of underweighted students are not tested for PCOS, 0.46% are non-PCOS, and 0% are PCOS students.
Moreover, 38% of normal weight students are not tested for PCOS, 6% are non-PCOS, and 8% are PCOS students. Regarding overweight students, most of them are not tested students 11%, coming after 8% with PCOS and 2% with non-PCOS. The table also shows that 10% of students not tested for PCOS are obese, 2% are non-PCOS and 4% are PCOS student.In the relationship between the level of knowledge of symptoms and the specialties of Almaarefa female students found that 21% of medical students have excellent knowledge of PCOS symptoms compared with 6.5% of other specialties.

Moreover, 38% of medical students showed poor knowledge of the symptoms compared to 60% of other specialties. Considering these percentages among the respondents, the probability was statistically significant (P=0.0082). Of those with PCOS, hirsutism was positive for 35%, menstruation amount was abnormal in 41%, menstruation irregularities were observed in 31%, weight gain was in 30%, hair loss was in 28%, acne in 17%, depression in 23% moody 19%, worried 21%, feeling angry 21% and having anxiety 19%. Values for hirsutism (p-value= 0.0000), menstruation abnormalities (p-value= 0.0000) and irregularities (p-value= 0.0043), weight gain (p-value= 0.000) and depression (p-value= 0.0034) in those with PCOS was significant.

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90% of PCOS cases exercise and 30% have restricted their diet. It was found that 25% of PCOS cases have self- conscious about their appearance compared to 11% of non PCOS and 64% of those not tested for PCOS. This variation in the proportion of self- conscious about appearance and occurrence of PCOS among the respondents was statistically significant. (p= 0.022). The majority of PCOS responded were embarrassed about their weight 27% and 11% of the PCOS were not, In comparison to the non PCOS respond who were embarrassed by their weight 11% and the non-tested are 62%. This variation in the occurrence of PCOS and weight embarrassing among the respondents was statistically significant. (p= 0.0086). The majority of PCOS participant were severely affected by 45% while 12% of PCOS participant were not affected by the occurrence of the disease. This is was statistically significant. (p= 0.000).

Table 1: The relationship between family history and PCOS among the students of AlMaarefa University, Riyadh.

	PCOS	Non-PCOS	Not Tested	Total
Positive family history	27	5	17	49
Negative family history	15	17	135	167
Total	42	22	152	216

Table 2: The relationship between age group and PCOS. (Awareness and features of PCOS in students of AlMaarefa University)

Characteristics	PCOS		NON-PCOS		Not Tested	
Age (Year)	**F**	**%**	**F**	**%**	**F**	**%**
< 20	**6**	**6.90 %**	**8**	**9.20 %**	**73**	**83.91 %**
21-25	**32**	**26.67 %**	**13**	**10.83%**	**75**	**62.50 %**
26-30	**3**	**37.50 %**	**1**	**12.50%**	**4**	**50%**
31-36	**1**	**100 %**	**0**	**0.00 %**	**0**	**0.00%**
37-40	**0**	**0%**	**0**	**0%**	**0**	**0%**

Table 3: The relationship between the level of knowledge of symptoms with different specialties regarding PCOS.

Knowledge / Specialty	Excellent	Moderate	Poor	Total	P-value
Medicine	**33**	**63**	**58**	**154**	**0.0082 (significant)**
Pharmacy	**3**	**11**	**17**	**31**	
Nursing	**1**	**1**	**5**	**7**	
Resp therapy	**0**	**4**	**11**	**15**	
Anesthesia	**0**	**4**	**5**	**9**	
Total	**37**	**83**	**96**	**216**	

Table 4: The relationship between different features of PCOS and the occurrence of PCOS among AlMaarefa students.

FEATURES	PCOS 42	NON-PCOS 22	NOT TESTED 152	Total	P-value
Hirsutism	**30**	**8**	**48**	**86**	**0.0000 (significant)**
Menstruation abnormality	**21**	**4**	**26**	**51**	**0.0000 (significant)**
Menstruation Irregularity	**23**	**8**	**42**	**73**	**0.0043(significant)**
Weight gain	**32**	**13**	**63**	**108**	**0.0002 (significant)**
Hairloss (frontal balding)	**19**	**8**	**41**	**68**	**0.0686 (Not significant)**
Acne	**33**	**22**	**130**	**185**	**0.0672 (Not significant)**
Depression	**36**	**20**	**99**	**155**	**0.0034 (significant)**

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DISCUSSION

The significantly higher proportion of family history among those with PCOS was expected. In fact, family history is a known risk factor of PCOS. According to a study was conducted in Palatine 2014 family history is one PCOS risk factor 16. It seems that the importance of family history of PCOS cannot be denied. This entails the girls with family history of PCOS should go early for the test.

The significantly higher proportion of student of age group 21 and above among those with PCOS was expected. This could reflect on the fact that as environmental stress occurs more with age and college studies, students were more likely to have the disease. Those not tested for PCOS was significantly higher in age group below 21. This shows that a large amount of girls before the age of 21 have not been to the clinic.
Most of the PCOS students were overweight. PCOS is proposed to be a genetic disease with hormonal imbalances that increase appetite, cause bloating and increase insulin resistance in some patients making it hard to lose to weight and easily gain weight. Despite the majority being in medicine a large number of girls are not tested for PCOS. This proves the lack of awareness of PCOS among young girls. This goes in line with other research was conducted in India in 2014 8. This could prove that the disease is a chronic genetic syndrome that occurs gradually under certain environmental factors and if controlled earlier can cause early prevention of the disease.

The higher proportion of excellent knowledge of PCOS symptoms among medical students with PCOS was expected. According to a study was conducted in Riyadh 2017; level of awareness, not unexpectedly was related to the high educational level and being student or worker in health background 25. It seems that the medical students have greater knowledge due to relating their condition with their study. It is important for healthcare providers to know more about polycystic ovarian syndrome because it is a crucial condition in our society.
Understanding body image is important to specify the social and psychological experience of being PCOS.

The significant higher portions of lower life quality among those with PCOS was expected. In fact, changes in outer appearance, particularly obesity and excessive body hair, but not the presence of acne, were significantly associated with specific aspects of quality-of-life and sexual satisfaction. Higher BMI scores were associated with lower scale scores, indicating decreased quality of life. Our result goes in line with other research which was conducted in Germany 2005 12. The goal of this study was to explore psychological well-being in the life of women with PCOS in relation to certain PCOS characteristics.

CONCLUSION

Students with a positive family history are more likely to get PCOS. Excellent level of knowledge regarding PCOS was highly associated with the medical field of the students. Students in medicine had a higher general score than those in pharmacy, nursing, respiratory therapy and anesthesia. There is no statistical relationship between age martial statues and the occurrence of PCOS. The results showed a significant difference between the BMI of those with PCOS in comparison to those without PCOS; PCOS participant were obese and overweight compared to non PCOS.

RECOMMENDATION

We recommend early screening programs in Saudi Arabia, to detect the syndrome among female teenagers with family history. Healthcare providers should know more about polycystic ovarian syndrome because it is a crucial condition in our society. Future studies with hospital based study and larger sample size on PCOS are needed for greater understanding of the manifestation of PCOS in the Saudi population.

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