

Polycystic Ovary Syndrome: A Local Perceptual Study

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Abstract

Background: Polycystic ovarian syndrome (PCOS) is a metabolic, hormonal, and psychosocial disorder that impacts the patient's quality of life. Moreover, it is still one of the most widespread diseases among childbearing female which plays a major impact on their fertility. Because of great number of complications associated with PCOS such as, infertility, endometrial cancer, Diabetes type 2 (DM2) and hypertension, it is important for reproductive age women to be aware about this disorder. Latest studies show increasing awareness about PCOS among Saudi female population as well as great number of females suffering from this disorder. **Aim of the Study:** Assessing the level of awareness about PCOS among Saudi females in Al-Ahsa in the aspects of causes, symptoms, and complications. **Methods:** The study will be done by using the population-based cross-sectional study. It will be conducted in the Al-Ahsa region by using a soft copy questionnaire. The estimated sample is 369 females of the reproductive age between 18 to 50 years old. Data will be analyzed statistically by using SPSS. **Results:** The participants number was 394. Majority of the studied population 55.2% were from urban back ground. 23.3%, 15.3%, and 4.7% were from the Alhafuf, Almuburaze, Aljafer. 31.1% were single and 64.8% were married. 86.27% were represented the level of awareness of PCOS. The participants whose age average from 18-29, residency in villages, and non-medical study field were aware of symptoms, complications and therapy, however, the education level and marital status showed no significant relationships in symptoms, complications and therapy. Height and weight has no impact on the results of the study. **Conclusion:** There is a high level of awareness about PCOS in Saudi females. A 91,5% of the participants correctly knew that Regulating period helps regulating ovulation and 52,1% of them know Treating PCO reduce cancer risk. Most of them have an idea that physical exercise and weight reduction could minimize the risk of PCOS.

Keywords: Polycystic Ovarian Syndrome, Irregular Menstrual Cycle, Gynecology, Fertility, Reproductive age, Hirsutism, Saudi Arabia.

ABBREVIATIONS AND ACRONYMS

PCOS: Polycystic ovarian syndrome.

LH: Luteinizing hormone.

SPSS: Statistical Package for the Social Sciences.

BMI: body mass index

DM2: Diabetes type 2

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INTRODUCTION

Polycystic ovarian syndromes (PCOS) consider as one of the most common reproductive endocrine system disorders in women [1, 2]. The etiology is unknown however some evidence said that it is a combination of reproductive and metabolic abnormalities, which is due to hormonal disturbance in the form of high androgen and estrogen levels. Hormonal disturbance and the absence of normal

hormonal feedback are the cause of a steady state level of LH and low progesterone level [3].

The excess androgen production results on the clinical presentations of PCOS which manifest as anovulation, hirsutism, and acne [4]. However, many women have different experiences with PCOS symptoms, complications, and the involvement of different systems. The manifestation relies on the

system involved, for example, gynecological (menses disorders, failure to ovulate, late menopause), metabolic (insulin resistance, dyslipidemia), cardiac (cardiovascular diseases), physical (hirsutism, hair loss, and baldness), and psychological (depression, stress, and anxiety) [5].

Based on the new Rotterdam criteria formulated by the European Society for Human Reproduction and Embryology, and the American Society for Reproductive Medicine, All other causes of hyperandrogenism, such as, adult onset congenital adrenal hyperplasia, hyperprolactinemia and androgen secreting neoplasm must be excluded first. Moreover, two out of three criteria must be presented in the patient to be fit for the diagnosis of PCOS. These criteria are anovulation, excess androgen, and polycystic ovarian morphology in ultrasound assessment [4].

Women with PCOS have a possibility of having impaired glucose tolerance once they reach 30 years of age, and some of them may get type 2 diabetes (DM2) [6]. Hyperandrogenemia is one of PCOS signs, which will cause a high testosterone level, which may lead to obesity [2, 7]. A 24 hours blood pressure monitoring shows that young women have a rise in both mean and systolic blood pressure. Furthermore, postmenopausal women 3 times at higher risk of developing hypertension [8]. Many studies showed that there is a relationship between PCOS and the development of gynecological cancers. Because of the hormonal disturbance and the prolonged anovulatory state, women with PCOS have 3 times more risk than other women to develop endometrial cancer [9, 10]. It found that because of the psychological and physical problems especially obesity and infertility, PCOS associated with considerable stress [1]. Delayed diagnosis of PCOS can cause further anxiety and depression [11, 12].

A study was published on June 15, 2017, about awareness of PCOS among Saudi females, shows that out of 674 participants approximately 60% to 77% of participants know the important symptoms and signs associated with PCOS such as oligo-anovulation, infertility, hyperandrogenism with acne and hirsutism, and hyperinsulinemia. Furthermore, obesity and its association with increased levels of free testosterone were only known to 56.3% of the participants. About two-thirds of the participants are unaware of the metabolic syndrome complications [13].

Another study published on February 07, 2017, shows that the awareness level of PCOS among the Saudi population was 56.7% while 43.3% of the population were not aware or do not have prior knowledge [14]. 60.7% of participants do not know whether the disease is inherited or not. Among aware females, most women were aware of associated symptoms such as irregular menstrual cycle, facial

acne, hirsutism, reduce fertility, weight gain, abortion, pelvic pain, and some of its complications like endometrial cancer, increase the level of androgen, anxiety, and psychological disturbance. Moreover, the level of awareness of PCOS was significantly related to educational levels, it increased with a higher education level [14].

On September 27, 2018, a study includes 350 students done in AL Qassim University about PCOS awareness shows that 71% of students were aware of PCOS, and about 12% of the students suffered from it [15]. Out of the students who are suffering from PCOS, 4% were underweight, 49% were with average normal weight, 31% were overweight, 11% were obese, and 4% were extremely obese [15]. When the students asked about their source of knowledge the result revealed that about 49% have other people (mother, sister, cousin, etc.) as their source of information. Followed by 21% who mentioned the Internet as the second source, hospitals occupy 20% as the third source, and college was the fourth source selected by 11% of the students. Television as a source has the smaller percentage about 1% [15]. 87% point out irregular menstrual cycle as the most common symptom of PCOS, voice change was the least common symptom which occupies 13%. Data collected from PCOS students shows that 53% of PCOS students had a family history of diabetes, high blood pressure, or endocrine disorders. Moreover, 29% has a mother or sister with similar symptoms who underwent investigations and diagnosed with PCOS [15].

Knowing PCOS causes, symptoms, and complications is very important for early management. Although many studies measure the level of awareness about PCOS in Saudi Arabia, there was no study conducted in Al-Ahsa as an area of interest. Thus, this study aims to provide updated data regarding the level of awareness about PCOS clinical presentations, risk factors, and complications among the female population in Al-Ahsa.

METHODOLOGY

5.1 Study design: The study is a population-based cross-sectional study.

5.2 Study area: This study is conducted in Al-Hasaa region.

5.3 Study comparison and intervention: There are no interventions in this study.

1. Study procedure

6.1: subjects

1. The subjects of this study are Woman of reproductive age from 18 years old to 50 years old.
2. The estimated total number is 2000 based on previous study.

6.2 inclusion criteria

1. Woman of reproductive age from 18 years old to 50 years old.
2. Women living in Alhassa.

6.3 Exclusion criteria

1. Any participants that did not give their consent to participate are excluded.
2. Woman of reproductive age below 18 years old and above 50 years.

2. Data Management**7.1 Questionnaire**

The questionnaire contains 7 items for personal data, 3 items about awareness and method of knowledge of PCOS in general, the rest of questions are about the awareness of PCOS clinical presentation, risk factors, and complications. Awareness questions answered by choosing a single answer from the three choices; yes, no, and I do not know. Ethical approval from the institutional review board/ethical committee was obtained. After taking the consent from the participants, data was analyzed by using SPSS version 23(IBM).

7.2 Data collection

Data was collected by using self-administered questionnaire design, A soft copy questionnaire via

google survey was distributed through social media in Arabic language. Purpose of the study was explained in the questionnaire to all participant that voluntarily filled it.

7.3 Study timeline**RESULTS**

This study took one year duration. This study was conducted in the period between 24/6/2020 till 14/4/2021(able to change). Data were collected via online Google survey.

394 Saudi females in Al-Ahssa were participated in this study, 8 females were excluded because their age was less than 18 and more than 50, the remaining 386 participant's age were between 18-50 years. 55.2% of participant were from villages of Al-Ahssa and the remaining participants from AlHofuf, AlMubarraz, AlJafr, and AlOyun. The majority (64.8%) of participants are married. out of 386 females, 71% with bachelor's degree. 29% of participant are in medical field and 71% are in non-medical field.

The main demographics of the participated female were presented in Table 1.

Table 1: Demographic characteristics of the participated female

Age	Frequency	Percentage
18-29	262	67.9
30-39	83	21.5
40-49	41	10.6
Total	386	100.0
Living		
Villages	213	55.2
AlHofuf	90	23.3
AlMubarraz	59	15.3
AlJafr	18	4.7
AlOyun	6	1.6
Total	386	100.0
Marital state		
Married	250	64.8
Single	120	31.1
Divorced	10	2.6
Widow	6	1.6
Total	386	100
Education level		
Primary school	2	0.5
Secondary school	11	2.8
High school	93	24.1
Bachelor's degree	274	71.0
Master's degree	6	1.6
Total	386	100.0
Study field		
Medical fields	112	29
Non-medical fields	274	71

The majority of participated female 86.27% (n=333) heard about PCO, Figure 1. Out of 333 participants 108 are in medical field, and 225 are in non-medical field, figure 2. 13.73% of participants have not heard about PCO. Out of all participants, the majority 60.1% (n=232) were from the age of 18-29 who heard about PCO. And 47.92% (n= 185) are living

in Villages. Moreover, most of them are married, it is representing as 56.21% (n=217). Most of them finish bachelor's degree. Most of the participated female (60.62%) have no family history of PCO (Figure 3). Half of the participated female (50,3%) do not know if PCO is hereditary or not (Table 2 & Figure 1).

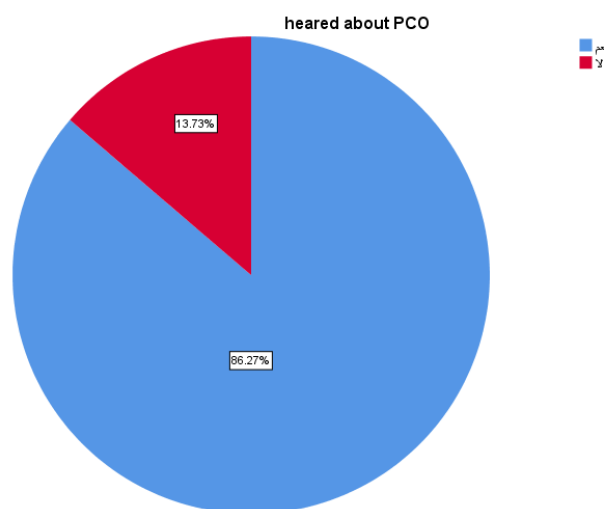


Figure 1

is PCO hereditary			
		Frequency	Percent
Valid	yes	49	12.7
	no	143	37.0
	I do not know	194	50.3
	Total	386	100.0

The level of awareness of PCO's symptoms and complication were also assessed. Most of the females who heard about PCO were also aware about the associated symptoms like irregular menstrual cycle, acne, hirsutism, delay in pregnancy, overweight, alopecia, pelvic pain, miscarriage, early menarche, DM, HTN, and psychological disturbances (Table 3).

Complication of PCO were also assessed, like, CVD, DM, uterine cancer, androgen excess and

psychological disturbances (Table 4). Most of the females were also aware about the therapeutic factors like exercise, weight reduction, contraceptive use, eating fruit and vegetables, protein, and fat rich food intake (Table 5). Most of the aware females (91,5) about PCO, believe that regulating menstrual cycles helps regulating ovulation (Table 6). And majority of them (52,1%) also believe that treating PCO reduces risk of cancer (Table 7).

Table 3

Symptom	Frequency	Percent
1-irregular menstrual cycle		
Yes	334	86.5
No	21	5.4
I do not know	31	8.0
2-acne		
Yes	212	54.9
No	75	19.4
I do not know	99	25.6
3- hirsutism		
Yes	227	58.8
No	59	15.3
I do not know	100	25.9

4- delay in pregnancy		
Yes	330	85.5
No	14	3.6
I do not know	42	10.9
5- overweight		
Yes	269	69.7
No	40	10.4
I do not know	77	19.9
6- alopecia		
Yes	139	36
No	72	18.7
I do not know	175	45.3
7- pelvic pain		
Yes	237	61.4
No	34	8.8
I do not know	115	29.8
8- miscarriage		
Yes	162	42
No	66	17.1
I do not know	158	40.9
9- early menarche		
Yes	49	12.7
No	119	30.8
I do not know	218	56.5
10- DM		
Yes	76	19.7
No	120	31.1
I do not know	190	49.2
11- HTN		
Yes	53	13.7
No	116	30.1
I do not know	217	56.2
12- psychological disturbances		
Yes	223	57.8
No	43	11.1
I do not know	120	31.1

Table 4

Complication	Frequency	Present
CVD		
Yes	42	10.9
No	99	25.6
I do not know	245	63.5
DM		
Yes	73	18.9
No	101	26.2
I do not know	212	54.9
uterine ca		
Yes	210	54.4
No	43	11.1
I do not know	133	34.5
androgen excess		
Yes	238	61.7
No	42	10.9
I do not know	106	27.5
psych disturbances		
Yes	270	69.9
No	24	6.2
I do not know	92	23.8

Table 5

Therapy	Frequency	Present
Exercise		
Yes	331	85.8
No	13	3.4
I do not know	42	10.9
Weight reduction		
Yes	301	78
No	23	6
I do not know	62	16.1
contraceptive		
Yes	141	36.5
No	118	30.6
I do not know	127	32.9
Eating fruits and vegetables		
Yes	287	74.4
No	8	2.1
I do not know	91	23.6
Protein rich food		
Yes	222	57.5
No	33	8.5
I do not know	131	33.9
Fat rich food		
Yes	39	10.1
No	206	53.4
I do not know	141	36.5

Table 6

Regulating period helps regulating ovulation			
		Frequency	Percent
Valid	yes	353	91.5
	No	5	1.3
	I do not know	28	7.3
	Total	386	100.0

Table 7

Treating PCO reduce cancer risk			
		Frequency	Percent
Valid	Yes	201	52.1
	No	16	4.1
	I do not know	169	43.8
	Total	386	100.0

There is a significant relationship between age average from 18- 29 years old and the awareness of the PCOS symptoms, such as irregular menstrual cycle, acne, and hirsutism (P=0.000). As well as this age group realize that PCOS is hereditary. Residency in villages shows a significant relationship as compering with other cities in knowing PCOS is hereditary, and treatment of PCOS reduce cancer risk.

Singles ladies have a significant relationship of realize that PCOS can present as hypertension symptoms. On the other hand, married ladies knowing that PCOS can complicated with DM. The level of education mainly university students, has a significant relationship with the awareness of acne as a symptom of PCOS.

Non-medical study field women have a significant relationship with acne symptoms, androgen excess as a complication, and believing that therapy with contraceptive can reduce the symptoms.

DISCUSSION

PCOS is a combination of reproductive and metabolic abnormalities, which is due to hormonal disturbance and the absence of normal hormonal feedback. PCOS considered as one of the major factors that decrease fertility among females. In addition, it may present with multiple signs and symptoms like androgenisation, obesity, Irregular menstrual cycle, hirsutism, and insulin resistance. The long-term complications of untreated PCOS are diabetes mellitus,

breast cancer, hypertension, and cyclic vomiting syndrome.

PCOS is a very common disorder among the reproductive female age group, which presents in 42.8% of the female Saudi population [16]. The aim of this study is to assess the level of awareness about PCOS among Saudi females in Al-Ahssa in the aspects of causes, symptoms, and complications. It considers as the first study applied in Al-Ahssa, Saudi Arabia.

A study conducted in 2017 to measure the health awareness of polycystic ovarian syndrome in Saudi Arabia showed minimal awareness about signs, symptoms, complications, and management approaches of PCOS in more than 60% of the sample population (674) [13]. On comparison, the number of females who have knowledge about PCOS in this study is up to 86.27% of the female participants. This study shows that 333 out of 386 participants heard about PCOS. The same group shows an acknowledgment of the symptoms. These symptoms include irregular menstrual cycle, facial acne, hirsutism, reduce fertility, weight gain, frontal hair loss, pelvic pain, abortion, early puberty, diabetes, hypertension, and psychological disturbance. The most common two symptoms which the participant aware of are irregular menstrual cycle and delay in pregnancy.

A certain number of the female participants were acknowledged about the factors that may reduce the symptoms of PCOS. These factors include doing exercise, losing weight, using contraceptives, eating vegetables and fruits, eating protein-rich food, and eating fat-rich food. 331 out of 333 of the female participants have massive knowledge about the effect of doing exercise in reducing the symptoms of PCOS, considers as the highest factor to be known. The majority of the participants are aware that PCOS could be complicated with psychological disturbance, androgen increase, and uterus cancer. However, only 73 out of 386 participants were aware that it could lead to diabetes mellitus, and 42 out of 386 were aware of its cardiovascular complications.

Limitation

As for any questionnaire-based research study, there are some uncontrollable limitations that need to be addressed. First, the questionnaire was online, which depends on internet use. Therefore, some Saudi females in Al-Ahssa cannot access the questionnaire. Second, the sample of the study is few comparing to the massive population of AL-Ahssa. Third, since the research was done by medical students, there might be some bias to their educated community which can affect the results. Finally, there may be random answers to the questionnaire.

CONCLUSION

There is a high level of awareness among alahssa Saudi women about symptoms and complication of PCOS, 91,5% of the participants correctly knew that Regulating period helps regulating ovulation and 52,1% of them know Treating PCO reduce cancer risk.

85,8% of the participants recognized physical exercise could minimize the risk of PCOS and 78% of the participants have the same thought about weight reduction. As recommendation, Future work will consider having a larger sample size.

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REFERENCES

1. Avery, J. C., & Braunack-Mayer, A. J. (2007). The information needs of women diagnosed with Polycystic Ovarian Syndrome—implications for treatment and health outcomes. *BMC women's health*, 7(1), 1-10.
2. Franks, S. (1995). Polycystic ovary syndrome. *New England Journal of Medicine*, 333(13), 853-861.
3. Thornton, E. C., Von Wald, T., & Hansen, K. (2015). Polycystic ovarian syndrome: a primer. *SD Med*, 68(6), 257-61.
4. American College of Obstetricians and Gynecologists. (2009). Polycystic ovary syndrome. ACOG Practice bulletin no. 108. *Obstet Gynecol*, 114, 936-949.
5. Moran, L., Gibson-Helm, M., Teede, H., & Deeks, A. (2010). Polycystic ovary syndrome: a biopsychosocial understanding in young women to improve knowledge and treatment options. *Journal of Psychosomatic Obstetrics & Gynecology*, 31(1), 24-31.
6. Fauser, B. C., Tarlatzis, B. C., Rebar, R. W., Legro, R. S., Balen, A. H., Lobo, R., ... & Barnhart, K. (2012). Consensus on women's health aspects of polycystic ovary syndrome (PCOS): the Amsterdam ESHRE/ASRM-Sponsored 3rd PCOS Consensus Workshop Group. *Fertility and sterility*, 97(1), 28-38.
7. Manita, D., Babu, M., & Rastogi, S. (2014). An exploratory survey to assess the knowledge, practice and prevalence of polycystic ovarian

- syndrome among women attending gyne OPD of selected hospital of Delhi with a view to develop a health care package on polycystic ovarian syndrome and its management. *IOSR Journal of Nursing and Health Science (IOSRJNHS)*, 3(6), 39-42.
8. Bates, G. W., & Legro, R. S. (2013). Longterm management of polycystic ovarian syndrome (PCOS). *Molecular and cellular endocrinology*, 373(1-2), 91-97.
 9. Kelly, C. J., Connell, J. M., Cameron, I. T., Gould, G. W., & Lyall, H. (2000). The long term health consequences of polycystic ovary syndrome. *BJOG: an international journal of obstetrics and gynaecology*, 107(11), 1327-1338.
 10. Haoula, Z., Salman, M., & Atiomo, W. (2012). Evaluating the association between endometrial cancer and polycystic ovary syndrome. *Human reproduction*, 27(5), 1327-1331.
 11. Barry, J. A., Azizia, M. M., & Hardiman, P. J. (2014). Risk of endometrial, ovarian and breast cancer in women with polycystic ovary syndrome: a systematic review and meta-analysis. *Human reproduction update*, 20(5), 748-758.
 12. Deeks, A. A., Gibson-Helm, M. E., Paul, E., & Teede, H. J. (2011). Is having polycystic ovary syndrome a predictor of poor psychological function including anxiety and depression?. *Human Reproduction*, 26(6), 1399-1407.
 13. AlSinan, A., & Shaman, A. A. (2017). A study to measure the health awareness of polycystic ovarian syndrome in Saudi Arabia. *Global Journal of Health Science*, 9(80), 210-219.
 14. Alessa, A., Aleid, D., Almutairi, S., AlGhamdi, R., Huaidi, N., Almansour, E., & Youns, S. (2017). Awareness of polycystic ovarian syndrome among Saudi females. *International Journal of Medical Science and Public Health*, 6(6), 1013-1020.
 15. Al Bassam, N. M., Ali, S., & Rahman, S. R. (2018). Polycystic ovarian syndrome (PCOS), awareness among female students, qassim university, Qassim Region, Saudi Arabia. *International Journal of Research-Granthaalayah*, 6(9), 395-406.
 16. Alessa, A., Aleid, D., Almutairi, S., AlGhamdi, R., Huaidi, N., Almansour, E., & Youns, S. (2017). Awareness of polycystic ovarian syndrome among Saudi females. *International Journal of Medical Science and Public Health*, 6(6), 1013-1020.