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Awareness of polycystic ovarian syndrome and effect of lifestyle modification on its management among female medical students at Hail University

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ABSTRACT

Objective: To find awareness of Polycystic Ovarian Syndrome (PCOS) and effect of lifestyle modification on its management among female medical students at Hail University. *Material & methods:* Cross-sectional study performed at college of medicine/ University of Hail, from Nov. 2020 to Jan. 2021. Female Saudi medical students (n=203) included in the study. *Results:* Young Saudi medical students from 20 to 40 years of age participated in the study. Maximum contribution was from 20-25 years aged group students. All academic year students participated but 2nd, 3rd and 4rth academic grade students participated more. Awareness of some aspects of the poly cystic ovarian syndrome was good like for menstrual abnormalities, it came as 85.7%, for multiple ovarian cysts 52.7%, hirsutism 43.3%, and for some wasn't adequate like weight gain 35%, acne 28.6%, and subfertility 24.1%. All students agreed that physical activity is good to control the symptoms, 56.7% mentioned regular exercise can help while 80.7% consider moderate exercise (brisk walking, jogging, cycling or swimming) as good. Similarly, students had good knowledge that physical activity help control obesity, hormonal and metabolic abnormalities and long-term consequences of PCOS like development of type 2 diabetes, hypertension, cardio vascular events and ovarian/endometrial Carcinomas. *Conclusion:* Students have good awareness for various presentations, short and long term consequences and weight reduction as first line non pharmacological intervention that help to improve symptoms as well as long-term sequela of PCOS.

Keywords: Awareness, polycystic ovarian syndrome, lifestyle modifications, students, Hail

1. INTRODUCTION

Polycystic ovarian Syndrome (POCS), according to Escobar-Morreale (2018) is a prevalent hormonal disorder of premenopausal women worldwide and is characterized by reproductive, endocrine, and metabolic abnormalities. It is characterized by the presence ofmenstrual aberrations owing to chronic an ovulation, signs or biochemical evidence of hyper-androgenism and group cysts arranged peripherally in ovaries.

Williams determined diagnosis of PCOS with fulfillment of two out of the three certain criteria 1- less amount of menstruation or interruption of menstruation at all or irregularities in menstruation cycle, 2-increase level of androgens hormone in female, 3- we see 8 or more cystic in ovary are sub capsular follicular cysts <10 mm in diameter and increased ovarian stroma. PCO is an ultrasound finding while Poly cystic ovarian syndrome is a metabolic abnormality that can lead to various reproductive health issues. The PCOS can affect a woman's health in many ways. The condition has short term clinical aspects like menstrual problems, subfertility and androgen excess, as well as in long term such as emergence of insulin resistance and diabetes, cardiovascular and endometrial carcinoma. The World Health Organization (2012) had classified Polycystic Ovary Syndrome in group II ovulatory disorders that are the hypothalamic-pituitary-ovarian axis dysfunctions.

Exact prevalence of PCO in Saudi Arabia is unknown. Guraya et al., (2013) found prevalence of 53.7% which is quite higher as compared to the previous studies. Ibrahim et al., (2017) attributed this higher prevalence to the presence of obesity and endocrinal disorders like hypothyroidism. Previous studies had revealed a relation between polycystic ovary syndrome and endo-crinological disorders such as hypothyroidism, hyperprolactinemia, and obesity. There is no consensus for Global prevalence of PCOS due to variability of diagnostic criteria used. An average prevalence is from 6 to 16 % is reported by Bozdag et al., (2016). A meta-analysis by Naz et al., (2017) shows its prevalence in adolescents based on the Rotterdam criteria as 11.04%, based on the National Institute of Health criteria, 3.39% and based on Androgen Excess and Polycystic ovarian syndrome society, it was 8.03%.

This study aims at finding the knowledge and effect of lifestyle modification on the course of this condition among future female doctors. This will help them establishing a positive attitude towards healthier eating and regular exercise.

2. MATERIALS & METHODS

This is a cross-sectional study carried out among medical female students at University of Hail, Kingdom of Saudi Arabia, during the period from 1st November 2020 to 31st January 2021. The study population included undergraduate female medical students of various academic years. The questionnaire was distributed online through Google survey form and data were collected in both Arabic and English languages. The questionnaire included socio-demographic characteristics (age, and educational level). Participants were asked about PCOS symptoms (7 items); and factors that minimize PCOS symptoms (diet/ exercise). The official approval for the study was obtained from the Scientific Research and Ethics Committee at hail University (Nr.20455/5/42 dated 16/04/1442H). Data entry and statistical analysis were carried out using Excel and the Statistical Package for Social Sciences, version 25. Descriptive statistics were conducted using frequency and percentage for categorical variables, whereas mean and standard deviation were applied for continuous variables. The knowledge score was computed by giving a score of 1 for "yes" answers and 0 for "no" answers. The total score and its percentage were computed for each participant. Those scoring below 50% were considered as having "inadequate knowledge", whereas those scoring 50% and above were considered as having "adequate knowledge".

3. RESULTS

Young Saudi medical students from 20 to 40 years of age participated in the study. Maximum contribution done by 20-25 years of aged women. All academic year students expressed their awareness regarding PCOS but 2nd 3rd and 4rth academic grade students participated more. Table 1 shows the frequency and percentage of the part done by each academic level and age group participants. Maximum responses were from 4th year female medical students and preparatory year contributed least. Table 2 elaborated awareness with respect to different presentation of the disease. Maximum knowledge was about the menstrual irregularities. Most of the students knew about abnormal cyclic patterns in PCOS. It was followed by the knowledge of enlargement of ovaries with multiple cysts and hirsute symptoms. More than half of participants agreed that regular exercise can help in reversing metabolic abnormalities. A large proportion knew the type of exercise that can help women to resolve disease symptoms.

To be physically active can help avoid many health issues including PCOS. Our study participants had good awareness about many aspects of this condition which can get reversed by having active lifestyle. High level of knowledge was regarding reduction in obesity while less knowledge was found for reduction of insulin resistance as shown in figure 1. Similarly when we asked the responders about long term benefits of weight reduction, positive response came from the majority (maximum for physical appearance and sub-fertility and min for hypertension) (figure 2).

Table 1 Demographic profile of the respondents

		Frequency (n=203)	Percentage (n=203)
Academic level	Prep.year	4	2
	2nd year	38	18.7
	3rd year	49	24.1
	4th year	68	33.5
	5th year	29	14.3
	6th year	15	7.4
Age(years)	20-25	196	96.6
	26-30	6	3
	others	1	0.5

Table 2 Awareness of PCOS symptomatology and effect of exercise

Symptoms awareness	Frequency n=203	%
Infrequent periods, irregular periods, or very light periods.	174	85.7
Ovaries that are large or have many cysts.	107	52.7
Extra or thick body hair, including the chest, stomach, and back (hirsutism)	88	43.3
Weight gain, especially central obesity.	71	35
Acne or oily skin.	58	28.6
Male-pattern baldness or thinning of hair.	8	3.9
Infertility.	49	24.1
Effect of excercise as treatment of PCOS		
Only regular exercise can help	114	56.15%
Moderate exercise (brisk walking, jogging, cycling or swimming) Good	164	80.7

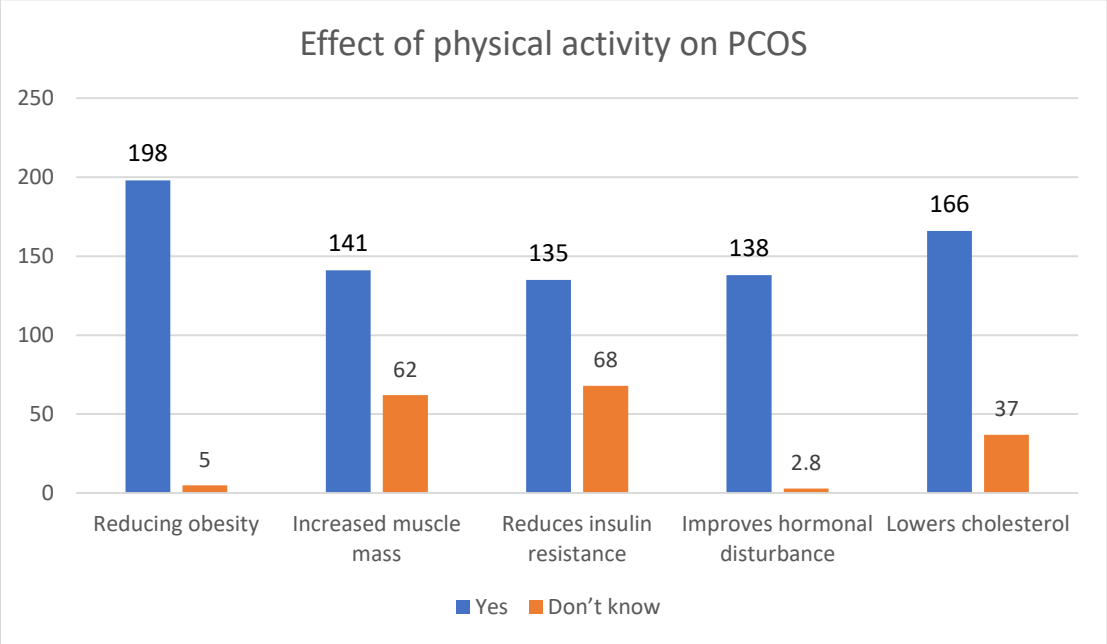

Figure 1 Improvements in physical aspects due to exercise

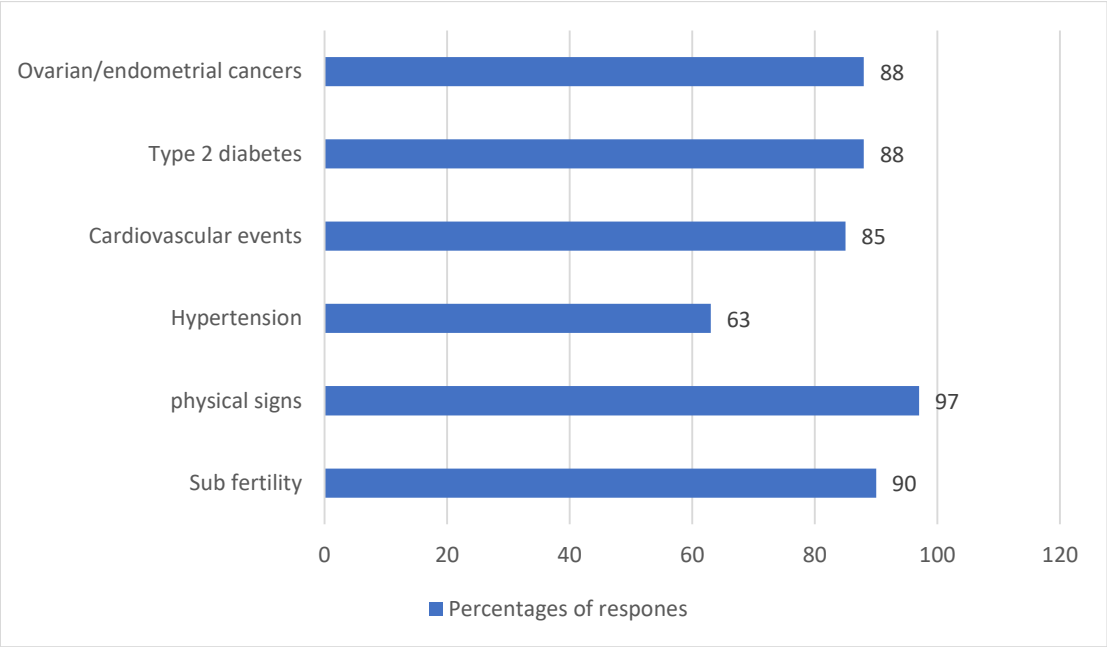

Figure 2 Can weight management help PCOS patients to improve?

4. DISCUSSION

PCOS, a chronic multisystem disorder caused by endocrine abnormalities is common in young Saudi females perhaps due to obesity and other endocrinal disorders that are prevalent here. It presents with a wide range of symptoms including: Irregular menstrual cycle, obesity, hirsutism, androgenic body signs, insulin resistance, and subfertility. In this study, we sought to address the awareness of PCOS with regard to life style modifications to control the condition. Studies conducted before in different cities of Saudi Arabia reflect significant awareness of the problem like the one published by Alruwaili et al., (2020) during the previous year. It revealed that participants had heard of PCOS as a hormonal disorder. In another study conducted by Al Bassam et al., (2018) also showed familiarity of this disorder as 71 %. It reflects that it's not unfamiliar in young Saudi females especially students. In the current study as well the overall perception of PCOS was quite high. It was quite expected due the high educational level of the participants, similar to the study by Alessa et al. (2017).

When we inquired the participants about different aspects of the disease symptoms, a high proportion 85.7% of them expressed their view about menstrual abnormalities abnormalities. They recognized them as (Infrequent periods, irregular periods, or very light periods). While almost half of the participants had awareness that the syndrome involves ovarian dysfunction and morphological changes in the ovarian structure like appearance of cysts in the ovaries. 43 % were familiar with hirsutism as its manifestation. Similar results were published in previous studies like of Alruwaili et al., (2020) and Al Sinan et al., (2017) where awareness of PCOS as abnormal menstrual pattern as 77 % and androgenic excessive hair growth as 46 %. Additionally, awareness of central obesity as its symptom was exactly same as 73 % in both the current and Alruwaili et al., (2020). We couldn't get good acquaintance about other symptoms. This much level of cognizance was quit satisfying for medical graduates of Saudi Arabia while the studies conducted on same design with different setting like of Nelson et al., (2017) conducted in India during 2017 showed inadequate awareness of PCOS among undergraduate medical students.

Furthermore, when we inquired the students about their views about diet modification to control symptoms of PCOS, we found good level of knowledge. Raw fruits and vegetables, lean meat like poultry and fish and high fiber grains like oats and lentils showed awareness of 73, 64 and 69.75 % respectively. It evidences that our students are aware of the dietary interventions that can help to control the course of this syndrome, also the students were familiar with the types of different diet modalities that were proven to be beneficial in symptom control like those mentioned by Papavasiliou et al., (2017) in the review article published in 2017. Many studies are accomplished before, mentioned that weight reduction helps in controlling the progression of the disease, like the one published before by Albezrah and Arein (2019). Weight reduction and physical activity counteracts symptoms complex of the disease also and is advised as first line management strategy of PCOS women. When the participants were asked about how weight reduction goal can be achieved.

Almost all the student agreed that exercise has positive effect in symptom control as well as it reverses the obesity related to this syndrome. Many participants 114(56.5%) expressed their point of view that only regular exercise can help in management while

majority 80.7% % were of opinion that moderate exercise (brisk walking, jogging, cycling or swimming) is beneficial if suggested as lifestyle modification strategy to treat PCOS. Students had fairly acceptable level of awareness about how exercise effect the disease course. Maximum effect was expressed that exercise helps in correcting obesity. Majority of the participants agreed that exercise helps to reverse hormonal disturbances, corrects insulin resistance and cholesterol metabolism (figure 1). With regard to the development of long term complications in women having PCOS, our participants expressed their opinion that weight management can help to control the development of long-term problem like subfertility, type 2 diabetes, ovarian/ endometrial cancers and cardiovascular events.

Out of 203 universities medical students were asked about personal encounter with the syndrome, two students out of 203, 1.3% is ever diagnosed with PCOD. This prevalence is quite different than mentioned Al Bassam et al., (2018) where it was 12% among the university students.

5. CONCLUSION

We reached the conclusion that the awareness about PCOS is quite reassuring for future female doctors from Hail. They can identify the condition by its symptom complex, have awareness of it metabolic and endocrinal aspects and can advise the women to adopt healthy life style which not only will improve their appearance but have positive influence on the short as well as long term health issues.

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Author Contributions

Nuzhat Parveen - The concept, designed questionnaire did data analysis, revised and reviewed the manuscript and supervised the co-authors. Atheer Mohammed Alanize - helped in designing study, data collection and writing some discussion points. Ghadah Fayyadh Alrowiliy, selected subject of the study, prepared and distributed questionnaire and wrote introduction in the draft. Haifa Owayed Alshammari participated in data collection and analysis.

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Conflict of Interest

There are no conflicts of interests between the authors.

Informed consent

The participants were explained about the purpose of the study and anonymity of the data and consent obtained before getting their views. Only those willing to participate were included.

Ethical approval for study

The official approval for the study was obtained from the Scientific Research and Ethics Committee at University of Hail (Nr.20455/5/42 dated 16/04/1442H).

Data and materials availability

All data associated with this study are present in the paper.

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