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Original Research Article

Awareness of PCOS (polycystic ovarian syndrome) in adolescent and young girls

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ABSTRACT

Background: Polycystic ovarian syndrome (PCOS) is an endocrine disorder which affects the adolescent girls. It affects 5% to 10% of women in their reproductive age. Awareness and accurate diagnosis is the first step in managing PCOS as it improves quality of life of the patient. The study was conducted to assess the knowledge on PCOS among the medical students.

Methods: Survey of 200 girls was done to assess the knowledge on the polycystic ovarian syndrome among the medical students of different colleges studying in 1st, 2nd, and 3rd year. The data was collected from the students by using structured questionnaire.

Results: In present study, 51% girls had normal BMI, 19.5% were overweight, 16.5% were obese while 13% were underweight. 33.5% females had acne, 16% had irregularity of menses, 5% had hirsutism while 2% had infertility. In present study, 33% adolescent and young girls had information about PCOS from teacher, 19% got information from friend, 11.5% got information from a doctor, 3.5% got information from newspaper while 5% got information from internet. 28% adolescent and young girls were unaware of PCOS.

Conclusions: Thorough knowledge of the disorder and counseling for adolescents should be included in the curriculum which will provide awareness towards the disorder and lifestyle modification. Accurate diagnosis at a younger age may be a key.

Keywords: Adolescent girls, BMI, PCOS, Young girls

INTRODUCTION

Polycystic ovarian syndrome (PCOS) is a condition in which woman has an imbalance of female sex hormones.¹ This may lead to changes in the menstrual cycle, cyst in the ovary, failure to conceive and other health problems.¹ It is a common health problem among teenagers and young women.¹ It affects 5% to 10% of women in their reproductive years. These problems cause infertility.¹ Research has suggested that PCOS may be related to increased insulin production. PCOS seems to run in families, too, so if someone in the family has it, they might be more likely to develop it.¹

Although there is no cure for PCOS, there are several ways to treat and manage the condition.¹ If a girl is overweight, Weight loss can be very effective in lessening many of the health conditions associated with PCOS.¹

Sometimes weight loss alone can restore hormone level to normal, causes many of the symptoms to disappear or become less severe. Healthy food habits and exercise helps to combat the weight gain.¹ India has witnessed about 30% rise in PCOS cases in the last couple of years. Lack of knowledge and lifestyle changes are considered to be the major factor leading to this phenomenon.¹ There

is a need to increase awareness among women so as to avoid major cases of fertility problems in the future.¹

The prevalence has been increasing in the adolescent population.² In more than 40% of cases, PCOS is associated with obesity, as well as impaired glucose tolerance, type 2 diabetes, and the metabolic syndrome.³

While the pathophysiology of PCOS remains unclear, insulin resistance has been implicated as a major causative factor.⁴ Accurate diagnosis of PCOS is of critical importance to public health, given the chronic nature of the disorder and its association with multiple health consequences.³

PCOS is being under evaluated and possibly underdiagnosed in the adolescent population.³ Awareness of PCOS and its diagnosis must be increased among physicians caring for adolescent girls.³ Given the high prevalence of PCOS, its short- and long-term effects on physical and mental health, and its costs to the health care system, one might wonder why there is such a lack of awareness about PCOS.⁴

There is an increasing awareness of PCOS among the adolescent population along with an increase in diagnosis and an increased incidence of established co-morbidities such as obesity and type 2 diabetes. The Poly Cystic Ovaries Syndrome is considered to be most prevalent of all endocrine disorders which women face.⁵

The diverse manifestations of PCOS start at an early age when a girl is maturing into a young woman.⁶ It is important to make an early diagnosis in order to prevent early and late sequel of the syndrome.⁶ PCOS may occur at a younger age in girls who develop early pubarche and thelarche. Therefore, the diagnosis and workup should be considered in young girls with risk factors suggestive of PCOS.⁷ Increased awareness of PCOS in young females is needed.⁷

The study was conducted to assess the knowledge on the polycystic ovarian syndrome (PCOS) among the medical students of 1st, 2nd and 3rd year; to find the source of information; to find the prevalence and to educate them about polycystic ovarian syndrome.

METHODS

The survey was conducted on 200 medical students of 1st, 2nd and 3rd year of different colleges by using simple random sampling technique.

The data was collected by using structured knowledge questionnaire on PCOS.

The investigator obtained permission from the students, prior to the data collection and assured confidentiality to the subject to get their cooperation and explained the purpose of the study. The results were analyzed.

Data collection was as follows:

- Age
- Weight in kg and height in cm to calculate BMI
- Type of diet- Vegetarian or mixed diet
- Irregularity of menses
- Signs of hyperandrogenism-Hirsutism or acne
- Source of information-Teacher, doctor, friend, paper or internet
- Type of consultation-Dermatologist or gynaecologist or any other
- No. of diagnosed cases

Operational definitions

- Adolescent girls- 10-19 years (for present study 18-19 years).
- Young girls- 20-24 years.
- Body mass index-
Normal: BMI =18-22.9 kg/m²,
Underweight: BMI <17.9 kg/m²,
Overweight: BMI >23 kg/m²,
Obese: BMI >25 kg/m² for girls above 18 years

RESULTS

In present study, 62.5% girls were young girls in the age group of 20-24 years while 37.5% girls were adolescent girls in the group of 18-19 years.

Table 1: Age group.

Age group	No. of patients	Percent
18-19 years	75	37.5
20-24 years	125	62.5

Adolescent girls were from 1st or 2nd year. Young girls were from 2nd or 3rd year. A few were from 4th year when they learn PCOS in syllabus.

Table 2: BMI (Body mass index).

BMI	No. of patients	Percent
<17.9 kg/m ² underweight	26	13
18-22.9 kg/m ² normal	102	51
>23 kg/m ² overweight	39	19.5
>25 kg/m ² obese	33	16.5

In present study, 51% girls had normal BMI, 19.5% were overweight, 16.5% were obese while 13% were underweight. Overweight and obese girls are more prone for PCOS. Counselling was given and weight reduction was advised. Also, hormonal profile for thyroid, hyperandrogenism was suggested.

In present study, 51% girls were consuming pure vegetarian diet while 49% girls were consuming mixed (vegetarian and non-vegetarian) food. Advice regarding healthy food was given.

Table 3: Type of diet.

Type of diet	No. of girls	Percent
Mixed (veg and non-veg)	98	49
Vegetarian	102	51

Table 4: Problems in adolescent and young girls.

Problems	No. of patients	Percent
Irregularity of menses	32	16
Hirsutism	10	5
Acne	67	33.5

In present study, 33.5% girls had acne, 16% had irregularity of menses, 5% had hirsutism. Hormonal profile for hyperandrogenism was suggested.eg. Serum Testosterone, Serum DHEAS. If these levels were high, the girls were referred to endocrinologist for further management.

Table 5: Source of information about PCOS.

Source of information about PCOS	No. of patients	Percent
Teacher	66	33
Friend	38	19
Doctor	23	11.5
Paper	7	3.5
Internet	10	5
No information	56	28

In present study, 33% adolescent and young girls had information about PCOS from teacher, 19% got information from friend, 11.5% got information from a doctor, 3.5% got information from newspaper while 5% got information from internet. 28% adolescent and young girls were unaware of PCOS.

Being medical students, main source of information was teacher. Still 28% of girls were unaware about PCOS when they are in first or second year. So, 72% girls were aware of PCOS while 28% were unaware of PCOS.

Table 6: Type of doctor attended.

Type of doctor attended	No. of girls	Percent
Dermatologist	19	9.5
Gynaecologist	9	4.5
Ayurvedic	2	1
Homeopathic	2	1

In this study, 9.5% girls consulted dermatologist for either hirsutism or acne, 4.5% consulted gynaecologist for irregularity of menses, 1% girls sought ayurvedic treatment while 1% opted for homeopathy. Amongst 16% girls who consulted a doctor, 9% girls did ultrasonography and blood investigations. Amongst them, 6% girls were diagnosed as having PCOS. So, prevalence of PCOS in present study is 6%.

Table 7: Prevalence of PCOS.

	No. of girls	Percent
Consultation with doctor	32	16
Investigations done	18	9
Proved PCOS	12	6

DISCUSSION

Age distribution

The present study was conducted on 200 medical students by using simple random sampling technique. In current study, 62.5% girls were young girls in the age group of 20-24 years while 37.5% girls were adolescent girls in the group of 15-19 years. Sunanda B et al revealed that 85% of the samples were in the age group of 21-25 years, 75% of the samples were Christians, 82% of the samples were consuming mixed diet, and 92% samples had regular menstrual cycle.¹ Sills S et al found that from 657 participants, the majority (63%) were between 26-34 years.² Moghul S found that the increasing trend of PCOS is predominantly seen in the age group 15 to 30 years.⁸

BMI (Body mass index)

In present study, 51% girls had normal BMI, 19.5% were overweight, 16.5% were obese while 13% were underweight. Sanchez N et al found that 32% were obese.⁴

Type of diet

In present study, 51% girls were consuming pure vegetarian diet while 49% girls were consuming mixed (vegetarian and non-vegetarian) food.

Problems in girls

In present study, 33.5% females had acne, 16% had irregularity of menses, 5% had hirsutism. Sanchez N et al found that 32% were obese, 21% had acne, and 7% were hirsute (all associated with elevated testosterone levels and PCO appearance on ultrasound.⁴ Joshi et al found that history of oligomenorrhea had a positive predictive value of 93.3% and negative predictive value of 86.7% to detect a possible case of PCOS.⁶

Source of information

In present study, 33% adolescent and young girls had information about PCOS from teacher, 19% got information from friend, 11.5% got information from a doctor, 3.5% got information from newspaper while 5% got information from internet. 28% adolescent and young girls were unaware of PCOS. 72% girls were aware of PCOS while 28% were unaware of PCOS. Sunanda B et al found that 76% of the samples were with average knowledge and 10.7% with good knowledge regarding

polycystic ovarian syndrome.¹ Sills ES et al found that more than 97% (n =638) of the respondents were familiar with PCOS, while 1.9% had not been told about PCOS, and <1% were uncertain.²

Sills ES et al found that those subjects between age 26-34 were significantly more aware of PCOS than any other age group.² Gul S et al found that only 20 out of 177 women had any knowledge about this syndrome. Out of these 20 women 11 were those who had degrees in Medical Sciences.⁶ Gul S. et al found that 10% of women knew about this disorder.⁵

Consultation for complaints

In this study, 9.5% girls consulted dermatologist for either hirsutism or acne, 4.5% consulted gynaecologist for irregularity of menses, 1% girls sought ayurvedic treatment while 1% opted for homeopathy. Sills ES et al found that Physicians were the most common provider of PCOS information for all study participants, irrespective of age.²

Prevalence of PCOS

In current study amongst 16% girls who consulted a doctor, 9% girls did ultrasonography and blood investigations. Amongst them, 6% girls were diagnosed as having PCOS. So, prevalence of PCOS in present study is 6%. Sanchez N et al found that the prevalence of PCOS in adult women aged 18-45 years in the US is estimated to be 6.6%.⁴

Joshi B et al found that globally, prevalence estimates of PCOS are highly variable, ranging from 2.2% to as high as 26%.⁶ Joshi B et al found that the prevalence of PCOS was 22.5% by Rotterdam and 10.7% by Androgen Excess Society criteria.⁶ Joshi B et al demonstrated that PCOS is an emerging disorder during adolescence and screening could provide opportunity to target the group for promoting healthy lifestyles and early interventions to prevent future morbidities.⁶

Shetty D found that around 10% of Indian women are affected with Polycystic Ovary Syndrome, commonly known as PCOS.⁹ Choudhary N et al found that prevalence of PCOS in Indian adolescents is 9.13%.¹⁰ Vaidya R et al found that according to World Health Organization, there are PCOS affected 116 million women worldwide in 2012 (3.4% of women).¹¹ Lakshmi KS et al found that the prevalence of PCOS at a tertiary care hospital was 32%.¹²

Radha P et al found that the rates of polycystic ovarian syndrome are high among Indian women compared to their Caucasian counterparts, with an estimated prevalence of 9.13% in Indian adolescents.¹³ Radha P et al found that 20% of participants were diagnosed with PCOS. The proportion of PCOS was higher in urban population in comparison to rural counter parts.¹³

CONCLUSION

From this study, it is concluded that 72% of girls were aware of PCOS while 28% of girls were unaware of PCOS. Prevalence of PCOS in present study is 6%. Most common source of information about PCOS was teacher as the girls were medical students.

Girls who were having BMI more than 23 should be educated about its hazards and should be advised weight loss. Girls who had irregularity of menses and signs of hyperandrogenism should be investigated and must be managed accordingly.

Early diagnosis of PCOS and its prompt treatment will help the girls to improve quality of life and prevent further health hazards.

Recommendations

- Counseling for adolescents should be included in the curriculum which will provide an awareness towards the disorder and lifestyle modification.
- There is a need for intensified efforts in early detection.
- Accurate diagnosis at a younger age may be a key to preventing many of the long-term health consequences associated with this syndrome.

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REFERENCES

1. Sunanda B, Nayak S. A study to assess the knowledge regarding PCOS (polycystic ovarian syndrome) among nursing students at NUIINS. NUJHS. 2016;6(3).
2. Sills ES, Perloe M, Tucker MJ, Kaplan CR, Genton MG, Schattman GL. Diagnostic and treatment characteristics of polycystic ovary syndrome: descriptive measurements of patient perception and awareness from 657 confidential self-reports. BMC Women's Health. 2001;1(1):3.
3. Broder-Fingert S, Shah B, Kessler M, Pawelczak M, David R. Evaluation of adolescents for polycystic ovary syndrome in an urban population. J Clin Res Pediatr Endocrinol. 2009;1(4):188-93.
4. Sanchez N. A life course perspective on polycystic ovary syndrome. Int J Womens Health. 2014;6:115-22.
5. Gul S, Zahid SA, Ansari A. PCOS: symptoms and awareness in urban Pakistani women. Int J Pharma Res Health Sci. 2014;2(5):356-60.
6. Joshi B, Mukherjee S, Patil A, Purandare A, Chauhan S, Vaidya R. A cross-sectional study of polycystic ovarian syndrome among adolescent and

- young girls in Mumbai, India. *Indian J Endocrinol Metab.* 2014;18(3):317-24.
7. Bronstein JI, Tawdekar S, Liu Y, Pawelczak M, David R, Shah B. Age of onset of polycystic ovarian syndrome in girls may be earlier than previously thought. *J Pediatr Adolesc Gynecol.* 2011;24(1):15-20.
 8. Moghul S. 1 in 5, women affected by PCOS in India! but fret not, we have the solution. *Health Me Up*, September 7, 2015. Available from: <http://www.indiatimes.com/health/healthyliving/1-in-5-women-affected-by-pcos-in-india-but-fret-not-we-have-the-solution-244753.html>
 9. Shah D. One out of every 10 women have got polycystic ovarian syndrome. *Gynaec World.* Available from: <http://www.dnaindia.com/health/report-one-out-of-every-10-indian-women-have-polycystic-ovary-syndrome-dr-duru-shah-founder-president-pcos-society-2127640>. 22 Sep 2015.
 10. Nidhi R, Padmalatha V, Nagarathna R, Amritanshu R. Prevalence of polycystic ovarian syndrome in Indian adolescents. *J Pediatr Adolesc Gynecol.* 2011;24(4):223-7.
 11. Vaidya R, Joshi B. PCOS-epidemic in India: An emerging public health challenge. *International Conf PCOS Society India with AE-PCOS Society USA*, 19-6-2016. Available from: http://www.pcosindia.org/files/education/pcos_epidemic_in_india_19_6_2016.pdf
 12. Lakshmi KS, Jayasutha J, Chandrasekar A. A study on prevalence of polycystic ovarian syndrome in a tertiary care hospital. *Int J Pharmaceu Sci Res.* 2015;6(1):383.
 13. Radha P, Devi RS, Madhavi J. Comparative study of prevalence of polycystic ovarian syndrome in rural and urban population. *J Adv Med Dent Scie Res.* 2016;4(2):90-5.

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