

Screening of Polycystic Ovary Syndrome in Collegiate Females

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ABSTRACT Polycystic Ovarian Syndrome (PCOS) is the most common cause of menstrual dysfunction and hyperandrogenism. PCOS is recognized as a heterogeneous disorder that results in overproduction of androgens, primarily from the ovaries and leads to anovulation, hirsutism, and insulin resistance. The prevalence rise to 18-20% when used the Rotterdam criteria PCOS diagnosis is challenging for providers because of the diagnostic criteria varving and inconsistency of the patient's complaints.

<u>Aim</u>: The aim of this study is to create increased awareness among the students for early and accurate diagnosis, which is the primary step in managing PCOS.

Objective: To determine the prevalence of polycystic ovarian syndrome in collegiate females, indicating females at high risk of having PCOS.

<u>Study Design</u>: A Questionnaire based Cross-sectional study.

Material and methodology: A Google form was conducted on 70 subject, collegiate females between 17-25 years of age are included in the study. Receiving Google form from the subject in which they were given a questionnaire Clinical tool for diagnosis of Polycystic ovary syndrome by Sue. D. Pederson. They were asked to choose the symptoms and the responses are documented.

Keywords: PCOS, Anovulation, Hirsutism, Insulinresistance.

I INTRODUCTION

Polycystic Ovarian Syndrome (PCOS) is the most common cause of menstrual dysfunction and hyperandrogenism. PCOS is recognized as a heterogeneous disorder overproduction that results in of androgens, primarily from the ovaries and leads to anovulation, hirsutism, and insulin resistance. It is estimated that approximately every 1 in 10 women face PCOS before menopause and struggle with its complications.

Also, the controversy concerning a PCOS diagnosis and treatment contributes to the overall current complexities of the syndrome. I.F. Stein and M.L. Leventhal were the first researchers to distinguish the reproductive phenomena of what was to become known as PCOS (1935). A corelational effect of the presence of irregular menses and polycystic ovaries was the core of Stein and Leventhal's original study (1935). A polycystic ovary is defined as having 12 or more follicles (or cysts) within the 2-9 mm range under ultrasound (Balen et al. 2009).



Polycystic ovary syndrome presents a diagnostic challenge4 to family physicians because of the controversy that has surrounded the diagnostic criteria and because the presenting complaints in PCOS are variable. Most often, patients present with menstrual dysfunction, oligo menorrhea, or infertility; they can also pregnancy-related present with a complication, such as gestational diabetes, or spontaneous abortion. Hirsutism or acne could be the patient's primary concern, which can result in profound psychological distress. Polycystic ovary syndrome is with several associated comorbid conditions, including type 2 diabetes dyslipidaemia, hypertension, hepatic steatosis, obstructive sleep apnoea, endometrial carcinoma, and potentially breast and ovarian cancer. It is important to diagnose

II Literature Review

PCOS as early as possible in the course of disease sothat screening, education, and appropriate preventive action and treatment of these patients can be initiated.[5]

This population of women may have a plethora of symptoms and findings related to their condition.[8] Metrorrhagia or acne, irregular menses. amenorrhea, hirsutism, alopecia. Additional symptoms included metabolic syndrome, obesity, insulin resistance, acanthosis nigricans, Type dyslipidemias, 2 diabetes, hypertension, non-alcoholic liver disease, and obstructive sleep apnoea.[6] It has been estimated that around 6-10% of women in the reproductive period are affected by this endocrinological disease considering the classical definition of the syndrome and the prevalence rise to 18-20% when used the Rotterdam criteria PCOS diagnosis is challenging for providers because of the varying

diagnostic criteria and inconsistency of the complaints^{2,3}, patients' whereas the prevalence of PCOS in India 2021 is about 22.5%. The exact cause of PCOS remains unknown.[4] Abnormalities of the hypothalamic pituitary axis and the ovarian or adrenal steroidogenic pathway, perhaps caused by genetic changes, have suggested been as possible explanations.[9]Pituitary and hypothalamus. At the level of the hypothalamic-pituitary axis, increases in the frequency and amplitude of LH pulses have been recorded.[2] A ratio of serum LH: FSH >2 is observed in PCOS patients.

AIM/OBJECTIVE OF THE STUDY

The aim of this study is to create increased awareness among the students for early and accurate diagnosis, which is the primary step in managing PCOS.

III METHODOLOGY

Study Design: A Questionnaire based Cross-sectional study

A Google form was prepared and share to 70 subject, collegiate females between 17-25 years of age are included in the study. Receiving Google form from the subject in which they were given a questionnaire Clinical tool for diagnosis of Polycystic ovary syndrome by Sue. D. Pederson. They were asked to choose the symptoms and the responses are documented.

Clinical tool for diagnosis of Polycystic ovary syndrome by Sue. D. Pederson Sensitivity of 85%, specificity of 85%.

Screening Questionnaire for diagnosis of Polycystic Ovary Syndrome (PCOS)

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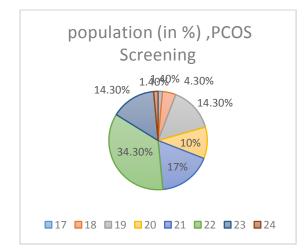
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	If <2, not consistent with diagnosis of PCOS

DATA ANALYSIS

S.No.	Age (in	% of	Total
	years)	population	no. (N)
1	17	1.4%	70
2	18	4.3%	70
3	19	14.3%	70
4	20	10%	70
5	21	17%	70
6	22	34.3%	70
7	23	14.3%	70
8	24	1.4%	70



DISCUSSION

The PCOS screening questionnaire was helpful to health care professionals' in identifying and diagnosing PCOS patients. In the original study by Pederson, the 4item questionnaire was validated as being useful in screening. The questionnaire had not been validated in a family practice setting, it was concluded that the questionnaire could be easily incorporated into a busy family practice office. This tool was found to be effective in the identification of women with PCOS.

We have constructed and validated a simple casefinding tool that can help physicians diagnose PCOS and can guide them in treating menstrual irregularity, infertility, and cosmetic concerns. This tool can also alert clinicians to screen for associated and potentially devastating comorbid conditions. A positive result must prompt a careful clinical assessment for metabolic and neoplastic complications of PCOS. A negative result does not rule out PCOS with certainty; in situations of doubt. referral to а reproductive endocrinologist is prudent.

This tool has been developed among women whose primary complaint is infertility. Many clinical symptomsamong these patients have substantial overlap. For example, women with hyperprolactinemia often present with secondary amenorrhea, as do women with PCOS. This selection bias in the referral patient population is likely also reflected in similarity of fertility ratesbetween women with PCOS and women without PCOS.

We included a history of nipple discharge in our clinical prediction tool, as a history of nipple discharge wasstrongly predictive of a diagnosis other than PCOS. This could reflect selection bias in our population; that is, patients with elevated



prolactin levels and amenorrhea are frequently referred reproductive to endocrinology clinics for further assessment. Yet previous research shows that, when pregnancy and PCOS are excluded, one third of patients presenting to family physicians with amenorrhea will have pituitary disease or dysfunction.19Consequently, it is prudent to include nipple discharge as an important negative predictor of PCOS among women with menstrual irregularity.

LIMITATIONS

Construction of this questionnaire is subject to some limitations. The sample size of 70 on which the tool was based and the limited number of categories our simplified tool uses to predict outcome restrict our ability to estimate the sensitivity for this measure and will provide a more accurate assessment of its validity.We believe thatthe simplicity of this clinical tool outweighs these limitations, and we hope that future research with this tool will provide a more accurate assessment of its validity.

IV Result

<u>Result</u>: According to the data collected, it was seen that prevalence of PCOS by using the validated questionnaire by Sue. D Pederson in the study was found to be 14.28%.

In this study, on Screening of Polycystic ovary syndrome in collegiate females of the age from 17-25 old, 70 subjects were taken, among which 10 responses were found to be positive. The questionnaire was validated by issuing the modified 4-item questionnaire to a second sample of 70 patients at the reproductive endocrinology clinic, 10 of whom had been diagnosed with PCOS by criterion standard.

A large number participants were of age 22 (34.3%), 17.1% were of 21 years, 14.3% were of 23 years, 14.3% were of 19 years, 10% were of 20 years, 4.3% were of 18, 2.9% were of 25, 1.4% were of 17, 1.4% were of 24 years.

The prevalence of PCOS by using the 4item validated questionnaire by Sue. D Pederson in the study was found to be 14.28% indicating the number of females at high risk of having PCOS.

V CONCLUSION

<u>Conclusion:</u> The study shows the population of high-risk collegiate females who need early medical attention for PCOS in order to lead a healthy life and managing the symptoms of PCOS.

The questionnaire was validated by issuing the modified 4-item questionnaire, sample of 70 collegiate females, 10 of whom had been diagnosed with PCOS by criterion standard. All the health care providers found the PCOS screening questionnaire to be helpful and effective in diagnosing PCOS patients and would continue to use in their practice. Also it would be helpful to detect the high risk groups (age groups) of PCOS. In addition, the providers would recommend the questionnaire to their colleagues.

REFERENCES

1) ViolandaGrigorescu, Et. Al; Polycystic ovary syndrome: A medical review; Office on Women's Health

2) Knochenhauer E.S., Et. Al, Prevalence of the polycystic ovary syndrome in unselected black and white women of the



south-eastern United States: A prospective study. J. Clin. Endocrinol. Metab. 1998; 83:3078–3082.

3) Rocha A.L.L., Et. Al. Non-alcoholic fatty liver disease in women with polycystic ovary syndrome: Systematic review and meta-analysis. J. Endocrinol. Investig. 2017; 40:1279–1288. Doi: 10.1007/s40618-017-0708-9.

4) Prevalence of PCOS in India 2021 PCOS Statistics India 2021 (drhemisoneja.com)

5) The Johns Hopkins Manual of Gynaecology and Obstetrics; Wolters Kluwer; 6th edition

6) Dr. SamiaNoursi Polycystic Ovary/Ovarian Syndrome (PCOS), Underrecognized, Underdiagnosed and Understudied; National Institute of Health, 2019

7) Sue d. Pederson, et al Research; Polycystic ovary syndrome Validated questionnaire for use in diagnosis; 2007

8) Madhumati Chatterjee, Soma Aditya Bandyopadhyay; Assessment of the prevalence of polycystic ovary syndrome among the college students: A case– control study from Kolkata; J Mahatma Gandhi Inst Med Sci 2020;25:28-32

9) Yoshinori Okamura; Et. Al.; Polycystic ovary syndrome: early diagnosis and intervention are necessary for fertility preservation in young women with endometrial cancer under 35 years of age; Reproductive Medicine and Biology

10) JeshicaBulsaraa et al; A review: Brief insight into Polycystic Ovarian syndrome; Endocrine and Metabolic Science: volume 3; 2021

11) GreiShele et al; Journal of Functional Morphology and Kinesiology; A Systematic Review of the Effects of Career Point International Journal of Research (CPIJR) ©2022 CPIJR | Volume 2 | Issue 1 | ISSN : 2583-1895

Exercise on Hormones in Women with Polycystic Ovary Syndrome; 2020

12) Shaw's textbook of Gynaecology; Hawkin and Bourne;17th edition

13) Sadeghi, H.M.; Adeli, I.; Calina, D.; Docea, A.O.; Mousavi, T.; Daniali, M.; Nikfar, S.; Tsatsakis, A.; Abdollahi, M. Polycystic Ovary Syndrome: A Comprehensive Review of Pathogenesis, Management, and Drug Repurposing; Int. J. Mol. Sci. 2022, 23, 583

14) Rasquin Leon LI, Anastasopoulou C, Mayrin JV. Polycystic Ovarian Disease; NBK459251

15) Antonio Aversa; Et. Al; Fundamental Concepts and Novel Aspects of Polycystic Ovarian Syndrome: Expert Consensus Resolution; Front. Endocrinol., 11 August 2020

16) Serri O, Chik CL, Ur E, Ezzat S. Diagnosis and management of hyperprolactinemia. CMAJ 2003;169(6):575-81.