

SURVEY OF POLY CYSTIC OVARIAN DISEASE (PCOD)

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ABSTRACT

PCOS is the most common endocrine disorder in women of reproductive age, affecting upto 10% of this age group and is on rise in parallel with diabetes prevalence. The syndrome is associated with numerous morbidities, including glucose intolerance, type 2 diabetes, CVS dysfunction, metabolic syndrome, infertility, mood and eating disorders. Insulin resistance is present in the majority of cases, with compensatory hyperinsulinemia contributing to hyperandrogenism via stimulation of ovarian androgen secretion and inhibition of hepatic sex hormone-binding globulin production. The diagnosis of PCOS depends on establishing key features while ruling out other hyperandrogenic or oligo-ovulatory disorders. Various diagnostic criteria such as NIH 1990 or Rotterdam 2003 are centered on the features of hyperandrogenism and / or hyperandrogenemia, oligo-ovulation and polycystic ovarian morphology. This study is an attempt to assess its prevalence in the girl students of around all parts of India. The study population represents a random sample of female students (232) age group was between 18-31yrs. The study period was five months October 2016 to February 2017. PCOS was diagnosed by using a questionnaire with Rotterdam's criteria. This study definitely created awareness among the adolescent college girls about PCOS. This will help them to modify their life style and to have better reproductive life later.

KEYWORDS: PCOS, Hyperinsulinemia, Infertility, Rotterdam's criteria.

INTRODUCTION

Polycystic Ovarian Disease or Stein – Leventhal Syndrome affects 3% to 6% of reproductive age-women, it presents with numerous cystic follicles, often with associated oligomenorrhea, persistent anovulation, obesity, hirsutism and insulin resistance.^[2-4] It is primarily characterized by an extremely irregular menstrual cycle in which ovulation may not occur. However, no single criteria is sufficient for clinical diagnosis due to multiple aetiologies and presentations. Paediatric Endocrinologists nowadays tend towards an earlier work-up instead of the traditional practice of waiting for two years post menarche.^[5-6]

Polycystic Ovarian Disease is the most common hormone disorder in women, affecting 5 percent to 10 percent of adolescent girls and adult women of child-bearing age. PCOS usually begins at or soon after puberty and is a life-long condition. Obesity is present in 50 percent of individuals with PCOS. In addition, women with PCOS are at increased risk of developing diabetes, cardiovascular disease, obstructive sleep apnea, and cancer of the uterus.^[6-10]

In view of this and the fact that the prevalence of this syndrome in our community remains unknown, we

attempt to find its prevalence in a community of women aged between 17-34 years.

SYMPTOMS

Common symptoms, signs and metabolic abnormalities of PCOS

Not all women with PCOS share the same symptoms.

- 1) Oligomenorrhea or amenorrhea, and / or irregular bleeding.
- 2) Male pattern baldness or thinning of scalp hair, Hirsutism involving face, chest, stomach, back, thumbs or toes.
- 3) Acne vulgaris – moderate to severe (treatment resistant / cystic).
- 4) Acanthis nigricans (patches of thickened, dark brown or black skin) on the neck, arms, breasts or thighs.
- 5) Skin tags in the armpits or neck area.
- 6) Depression.
- 7) Sleep apnoea syndrome.
- 8) Overweight or obesity, usually central.
- 9) Insulin resistance glucose intolerance and type II diabetes.
- 10) Hyperlipidemia.
- 11) Nonalcoholic fatty liver disease.
- 12) High blood pressure.

- 13) Anovulation and infertility.
- 14) High risk of coronary artery disease.
- 15) Prothrombotic state.^[1-6]

Criteria Used for Diagnosing Pcos

NH / NICHD 1990 or NHI Statement

To include all of the following

- 1) Hyperandrogenism and / or Hyperandrogenemia
- 2) Oligo-ovulation
- 3) Exclusion of hypothyroidism, Hypoprolactinemia, Cushing's syndrome, NCAH, Androgen secreting tumors and exogenous androgen intake.

ROTTERDAM 2003 or ESHRE / ASRM Statement

To include all of the following in addition to exclusion of related disorder

- 1) Clinical and / or biochemical hyperandrogenism
- 2) Oligo-ovulation or anovulation
- 3) Polycystic ovaries (exclusion of other endocrinopathies)

AE – PCOS 2006

To include all of the following

- 1) Clinical and / or biochemical hyper androgenism with either.
- 2) Oligo-anovulation
- 3) Polycystic ovaries (exclusion of other androgen excess of related disorders¹).

OBJECTIVE OF THE STUDY

- Identify the adolescent girls who are at high risk for PCOS.
- Find association between PCOS risk status with selected variable general health status.
- The major purpose of this study is to create awareness among adolescent college girls. This will help them to modify their life style and to have better reproductive life later.

MATERIALS AND METHODS

The medical history was recorded, with Anthropometric, clinical and biochemical parameters by using the questionnaire on whether the participant had been previously diagnosed with PCOS. A few questions were included to exclude thyroid disorders, hyper prolactinemia, and late-onset congenital adrenal hyperplasia⁸. Menstrual irregularity was assessed as a usual cycle of less than 21 days or more than 35 days. Clinical hyperandrogenism was assessed on the basis of the self-reported degree of hirsutism by using self assessment method. Results were kept confidential. The selected participants likely to have PCOS were asked to go for further clinical and ovarian ultra sound examination.^[8-9]

This is a questionnaire based study on the awareness of polycystic ovary syndrome. The participants who undertook the survey are undergraduate girl students of a college. A total of 29 questions were asked to 232 girls

of age group was between 17-34 yrs. Privacy was assured when the subjects filled the survey. The questionnaire is filled in paper and pen method. After the data collection, statistical measurements are done. The questions included are;

The questionnaire

Anthropometric, clinical and biochemical parameters

- (1) Age _____ yrs.
- (2) Height _____ cms.
- (3) Weight _____ kg.
- (4) Body Mass Index (BMI) _____ kg/m² (calculated).
- (5) Waist circumference _____ (cm).
- (6) Hip circumference _____ (cm).
- (7) Age at menarche _____.
- (8) Regularity of the menstrual cycle _____ (yes or no).
- (9) Pelvic pain during menstruation _____ (yes or no).
- (10) Marital status _____ If Married (yes or no). I yes answer 12 and 13.
- (11) Fertility problems _____ (yes or no).
- (12) Use of oral contraceptive Pills _____ (yes or no).
- (13) Presence of PCOD _____ If Yes, Answer the following
- (14) Diet _____ (what type of diet is taken).
- (15) Craving for carbohydrates and sugar _____ (yes or no).
- (16) Obesity _____ (yes or no).
- (17) Blood pressure _____ (mmHg)
- (18) Symptoms of hypoglycemia _____ (yes or no) .
- (19) Serum FSH and LH level _____ and _____ (ng/dl)
- (20) Serum Testosterone level _____ (ng/dl)
- (21) Hirsutism (Unwanted hair growth) of face and body _____
- (22) Acne _____ (yes or no).
- (23) Stretch marks (Stria) _____
- (24) Hair loss _____ (yes or no).
- (25) Acanthosis nigricans (Skin disorder) _____ (yes or no).
- (26) Other systemic disorders (✓ or ×)
Diabetes _____, Hyperthyroidism _____, Hypertension _____, High Cholesterol _____, Depression and mood change _____, Stress _____.
- (27) Family History: Your Mother with PCOD _____, Your siblings with PCOD _____.
- (28) Have you ever been come across the term PCOD? _____.
- (29) If yes, how did you know about PCOD? _____.

RESULTS AND DISCUSSION

The study population comprised of about 232 girls. The study reveal that among 68 girls of 17-19 years of age group 8 of them were with symptoms of PCOD. About 42 girls of 20-22 years age group 7 girls were with symptoms of PCOD. About 35 girls of 23-25 years age group 5 girls were with symptoms of PCOD. About 27 girls of 26-28 years age group 4 girls were with symptoms of PCOD. About 26 girls of 29-31 years age group 2 girls were with symptoms of PCOD. About 31 girls of 32-35 years age group 1 girls were with symptoms of PCOD.

Totally 35 girls (Table-I) in different age group to be having irregular menstrual cycles. 27 girls were detected with polycysts in their ovaries (Table-IV) and 22 girls were found to be with Hirsutism (Table-II). Among the girls studied about 43 of them were found to have increased acne (Table-III). The mean BMI of girls in age groups 17-19, 20-22, 23-25, 26-28, 29-31, and 32-34 were 24.5, 25.28, 26.8, 23.4, 26.1 and 27.12 respectively (Table - V).

The prevalence of PCOS has increased with the use of different diagnostic criteria and has recently been shown to be 18% in the first community – based on current Rotterdam diagnostic criteria.^[1,4] Laparoscopic criteria include enlarged pearly white ovaries with multiple follicles. Endocrine abnormalities associated with PCOS are elevated LH, normal FSH and LH / FSH ratio > 3:1. Long term consequences of PCOS include metabolic syndrome like diabetes mellitus, dyslipidemia and coronary heart disease. Women with PCOS are prone for development of endometrial and breast cancer in later life.^[10]

In married girl students, especially in the presence of other risk factors for infertility, early conception is advised. The final implication was the need for more research involving adolescent females with PCOS.^[15] The crude prevalence rate determined from this study was 17%. The findings of this study revealed that PCOS occurs in about 3 of 20 women. This once again proved that PCOS is the most common endocrine abnormality among women in the reproductive and adolescent age groups.

Table I: Total number of students having Irregular periods.

S.no	Age	Total number of students	Total no students having irregular periods	% of students with PCOS
1	17-19	68	12	17.6
2	20-22	42	8	19
3	23-25	38	6	15.7
4	26-28	27	4	14.8
5	29-31	26	3	11.5
6	32-34	31	2	6.45

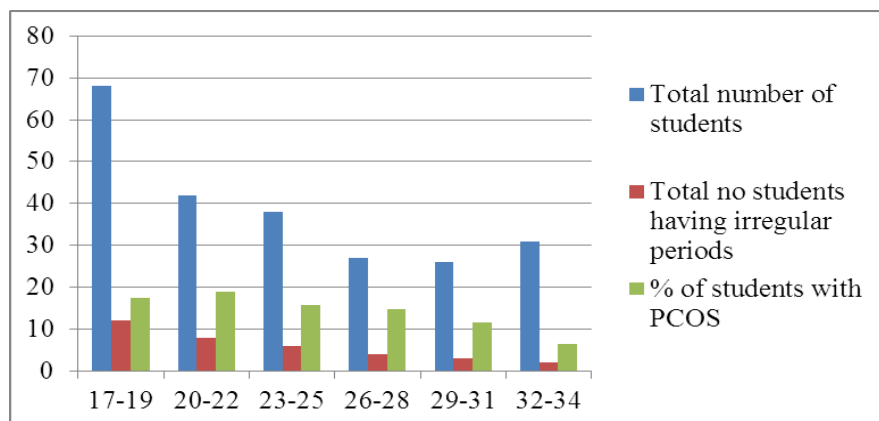


Fig - I

Table II: Total number of students having Hirsutism.

S.no	Age	Total number of students	Total number of students having Hirsutism	% of students having Hirsutism
1	17-19	68	6	8.8
2	20-22	42	4	9.52
3	23-25	38	3	7.89
4	26-28	27	4	14.81
5	29-31	26	3	11.5
6	32-34	31	2	6.45

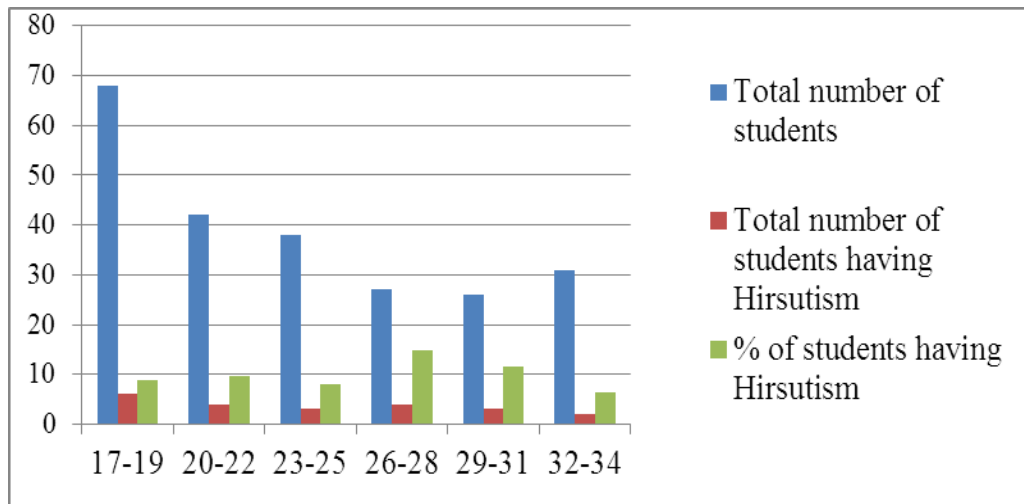


Fig – II

Table III: Total number of students having Increased Acne.

S.no	Age	Total number of students	Total number of students having increased Acne	% of students having increased Acne
1	17-19	68	13	19.11
2	20-22	42	11	26.19
3	23-25	38	7	18.4
4	26-28	27	5	18.57
5	29-31	26	4	15.3
6	32-34	31	3	9.67

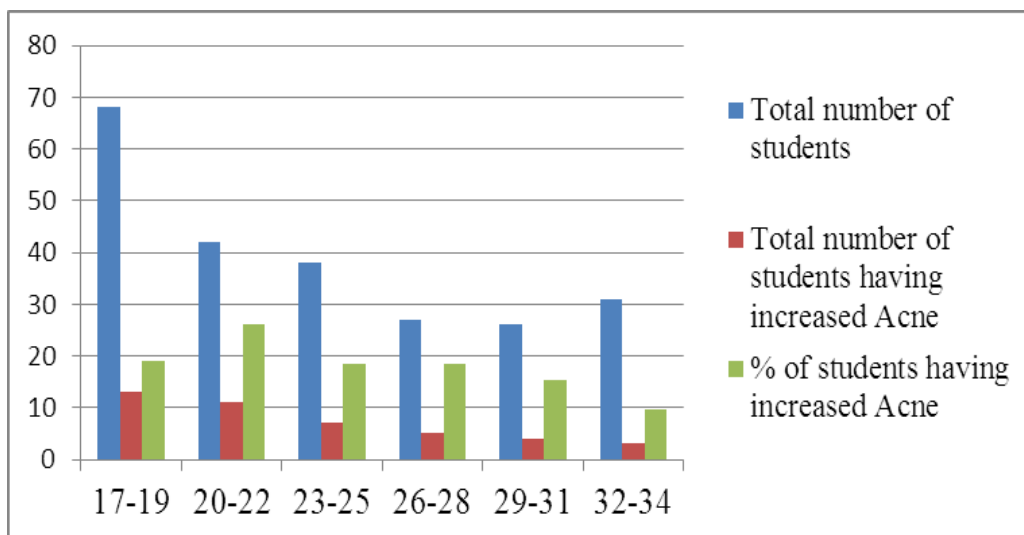


Fig – III

Table IV: Number of students Identified PCOS.

S.no	Age	Total number of students surveyed	No of students identified PCOS	% of students with PCOS
1	17-19	68	8	11.76
2	20-22	42	7	16.6
3	23-25	38	5	13.15
4	26-28	27	4	14.81
5	29-31	26	2	7.69
6	32-34	31	1	3.22

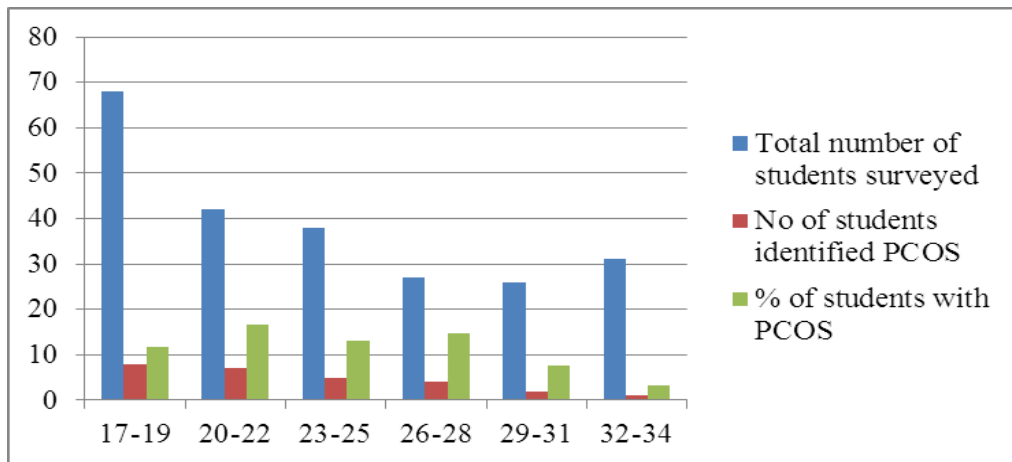


Fig – IV

Table V: Mean weight (kg), Mean Height (cm), BMI.

S.no	Age	Mean Height (cm)	Mean weight (kg)	BMI
1	17-19	150.6	55.41	24.5
2	20-22	155.25	53.62	25.28
3	23-25	153.6	54.74	26.8
4	26-28	155	53	23.4
5	29-31	152.75	57.12	26.1
6	32-34	151.8	59.27	17.12

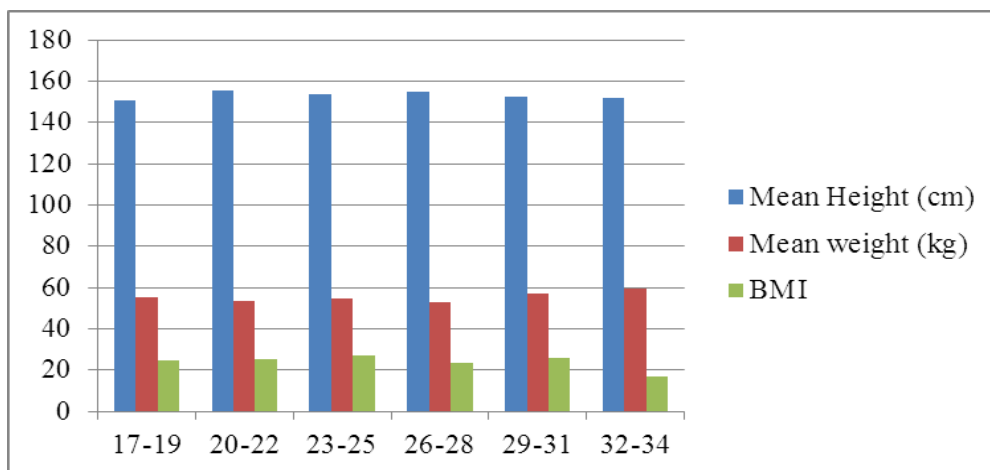


Fig – V

Most of the unmarried girls and few recently married girls with menstrual abnormalities were asked to take treatment with the consultation of gynecologist. In our study we identified 35 students with irregular periods. In women with PCOS intervals between menstruations of more than 3 months may be associated with endometrial hyperplasia.^[8,9] Life style changes through diet and exercise remain the first line for treatment of obesity in PCOS. PCOS is often associated with obesity and abnormal fat distribution, especially of abdominal fat, even where the BMI is normal. Obesity worsens insulin resistance that may exacerbate this dysfunction.

Lifestyle alteration will reduce the likelihood of developing type 2 diabetes later stages in lie. Effects of hyperandrogenisation are among the most deleterious

long-term consequences of PCOS when taken into consideration of its impact on a woman's self – image perception and the subsequent psychological effects.^[13,14]

CONCLUSION

In conclusion, PCOS is a common endocrine disorder of female adolescent and adulthood with exact etiology unknown but pathophysiology rooted in insulin resistance, hyperandrogenism and chronic anovulation. A multiple of clinical factors can present including hirsutism, menstrual irregularities, metabolic abnormalities, acne and increased BMI. History, physical exam and laboratory tests are all components of making a diagnosis as some adolescents do not present with all clinical factors. Treatment options include healthy

dietary habits and regular exercise accompanied by additional medications to treat presenting symptoms.

This study will explore the complex mechanism behind the manifestation of PCOS and how these, and other factors, may make diagnosis difficult. In order to thoroughly understand these aspects of PCOS, the causes, symptoms and treatments were explored. The diversity of causes and symptoms of the disease add to the difficulty in diagnosis and treatment of PCOS. The best treatment option varies among individuals, and the effectiveness of each treatment can vary according to an individual's condition. The research on all of these aspects of PCOS will inform the public about how PCOS can affect them and their loved ones.

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