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A STUDY ON IDENTIFICATION OF RISK FACTORS OF POLYCYSTIC OVARIAN SYNDROME BY CONDUCTING SURVEY AND MINIMIZING THEM THROUGH PATIENT COUNSELING AND ITS IMPACT ON QUALITY OF LIFE

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ABSTRACT: Background: Polycystic ovarian syndrome (PCOS) is a very common Endocrine Disorder encountered in women in which there is an imbalance of female sex hormones. It is associated with problems such as menstrual irregularities, Hirsutism, Obesity, Insulin resistance, acne, and in later life infertility with Diabetes mellitus and uterine cancer. **Objectives:** 1. Identify the subjects who are at risk for PCOS. 2. To make awareness about PCOS among young subjects. This will help to modify their lifestyle and to have better reproductive life later. 3. To improve the quality of life by reducing the risk of complications. **Methodology:** The study design was a prospective observational study carried out in Sangareddy (Telangana state) for a period of 6 months. A Survey of 805 subjects was done to assess the knowledge of polycystic ovarian syndrome. The data was collected from the subjects by using a structured questionnaire. **Results:** Results indicated that there is 26.9% in the age group of 16-20 years and 36.4% in the age group of 21-25 years and 31.2% in the age group 26-30 years of surveyed girls were having PCOS symptoms. In our study in the age group of 16-20 years, 12% of the females were found to be with oligoovulation, 6.08% with anovulation, and 8.8% with hirsutism. In the age group of 21-25 years, 20% were found with oligoovulation, 7% with anovulation, and 11.6% with hirsutism. In the age group of 26-30 years, 12.5% with oligoovulation, 6.25% with anovulation, and 12.5% with hirsutism. **Conclusion:** Thorough knowledge of the disorder and counseling for adolescents should be included in the curriculum, which will provide awareness towards the disorder and lifestyle modifications. Accurate diagnosis at a younger age may be a key.

INTRODUCTION: The term Polycystic Ovarian Disease (PCOD) was first described by Irving Stein and Michael Leventhal as a Triad of 'Ameno-rrhoea', 'Obesity' and 'Hirsutism' in 1935 when they observed the relation between obesity and reproductive disorders [1]. It is hence also known as the 'Stein-Leventhal Syndrome' or 'Hyper-andro-genic Anovulation' (HA) and is the most common endocrine ovarian disorder [2].

Now a days, it is also referred to as the 'Syndrome O', *i.e.,* over nourishment, overproduction of insulin, Ovarian confusion, and Ovulatory disruption. So, PCOD is called Polycystic Ovarian Syndrome (PCOS). Polycystic ovarian syndrome (PCOS) is a condition in which women have an imbalance of female sex hormones [3].

Women with PCOS produce higher than normal amounts of male hormones; this may lead to changes in the menstrual cycle, cyst in the ovary, failure to conceive, and other health problems. The Prevalence of PCOS is ranging from 2.2% to 26% [4]. Risk factors for PCOS include Sedentary lifestyle, obesity, stress, lack of physical activity, History of Diabetes, infertility [5], Family history of PCOS, Mother's irregular menstruation [6].

Clinical Presentation of PCOS in the majority of the cases includes irregular menstruation, oligo-menorrhea, amenorrhea, acanthosis nigricans, hirsutism, obesity [7].

PATHOPHYSIOLOGY OF PCOS
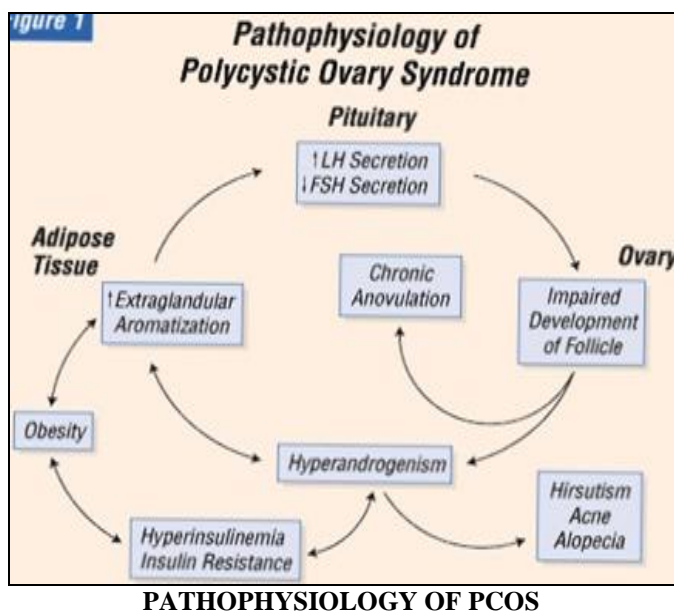
Criteria for Diagnosing PCOS: [8]

DIAGNOSTIC CRITERIA FOR PCOS
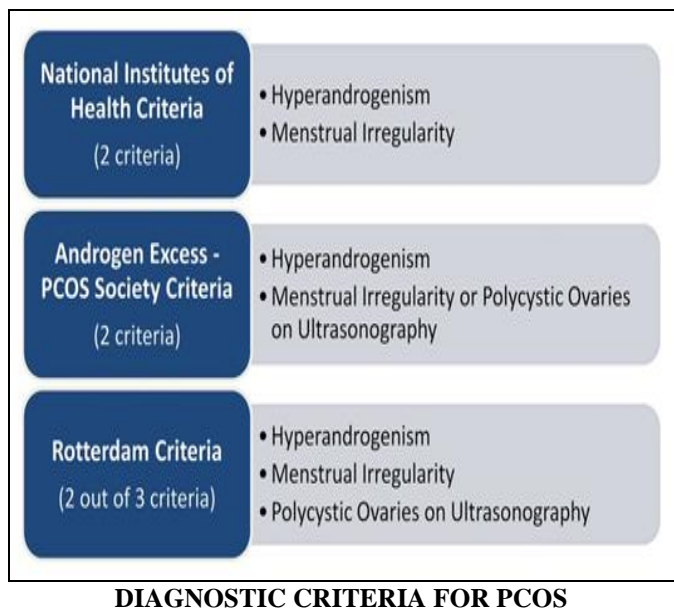
Pharmacological therapy for PCOS includes oral contraceptive pills, clomiphene citrate, metformin, thiazolidinediones, inositol, spironolactone, vitamin D [9]. Surgical procedures include laparoscopic ovarian drilling and electrocautery.

METHODOLOGY: The research type was a community-based Prospective Observational study. The study was carried out for a period of 8 months in the local colleges, Sangareddy, after careful

consideration of inclusion and exclusion criteria. The aim of the study was to educate young adolescent girls about irregularities in menstruation cycles and steps to overcome the problems if they found their symptoms correlating with PCOS.

Method:

Obtaining Clearance Certificate from IEC: For obtaining the ethical clearance certificate, an application along with study protocol, which included the proposed title, study site, inclusion and exclusion criteria, objectives, and methodology about the work to be carried out was submitted to the chairman of Institutional Ethics Committee.

Data Entry Format: A specially designed format was prepared to collect the subject's data, and a questionnaire was also prepared to assess the subject's symptoms individually.

Collection of Data: The present study was planned to carry out for a period of 8 months, in which 805 subjects were included. The subjects chosen for the study are from local intermediate and degree colleges in Sangareddy District, Telangana State.

Analysis of Data: The data of the subjects included in the study was carefully entered and evaluated through tabulation to obtain bar diagrams, pie charts, and to draw percentages.

Ethical Considerations: The study was conducted after obtaining ethical clearance from the Institutional Ethical Committee with the approval number IEC/MNRP/Prot/2019/007. Privacy and Confidentiality were ensured during the collection of data and patient counseling.

RESULTS AND DISCUSSION: Out of 800 subjects, 575 subjects were in the age group of 16-20 years, 214 subjects were in the age group of 21-25 years, and 16 subjects were in the age group of 26-30 years. The results are tabulated in **Table 1** and well depicted in **Fig. 1**.

In the age group of 16-20 years, out of 575 subjects, 26.9% were found to be with PCOS symptoms, in the age group of 21-25 years, out of 214 subjects 36.4% were found to be with PCOS symptoms and in the age group of 26-30 years, out of 16 subjects 31.2% were found to be with PCOS symptoms. The results are tabulated in **Table 2**. In

the age group of 16-20 years, the mean height, mean weight and mean BMI of the subjects were found to be 149.2 cm, 43.06 kg, and 19.02 kg/m^2, respectively. In the age group of 21-25 years, the mean height, mean weight and mean BMI of the subjects were found to be 150.8 cm, 47.86 kg, and 20.57 kg/m^2, respectively. In the age group of 26-30 years, the mean height, mean weight and mean BMI was found to be 154.3 cm, 55.9 kg, and 23.2 kg/m^2, respectively. The results are tabulated in **Table 3** and depicted in **Fig. 2**. The results obtained from the designed Questionnaire forms were tabulated in **Table 4** and well depicted in **Fig. 3**.

The data collected regarding the major symptoms of PCOS were tabulated in **Table 5** and depicted in **Fig. 4**. In the present study, Rotterdam criteria were used for the diagnosis of PCOS in which irregular menses (oligoovulation, anovulation) and hyper-androgenism (hirsutism) were considered. Out of 805 subjects, a total of 114 subjects in the 3 different age groups were found to have Oligo-ovulation. The results are tabulated in **Table 6** and depicted in **Fig. 5**.

Out of 805 subjects, a total of 51 subjects in the 3 different age groups were found to have an ovulation. The results are tabulated in **Table 7** and depicted in **Fig. 6**. Out of 805 subjects, a total of 78 subjects in the 3 different age groups were found to have hirsutism. The results are tabulated in **Table 8** and depicted in **Fig. 7**.

PCOS can be well managed with non-pharmacological approaches, which include healthy dietary habits and regular exercise, reduce the

intake of excess carbohydrates and sugars. The role of a clinical pharmacist plays a major role in making the patients understand the possible etiologies and risk factors associated with PCOS. Explaining certain lifestyle modifications like regular exercise, avoiding junk foods, fast foods, processed foods, foods with lots of preservatives, aerated cool beverages; switching on to healthy diet with high fiber content, drinking plenty of water, green leafy vegetables, broccoli, cauliflower, dark red fruits such as red grapes, blackberries, apples, and cherries can definitely bring down the potential symptoms of PCOS [10].

The age-old saying "Early to bed and early to rise", if followed, can be a gold standard preventive for Polycystic Ovarian Syndrome.

TABLE 1: AGE DISTRIBUTION IN STUDY POPULATION

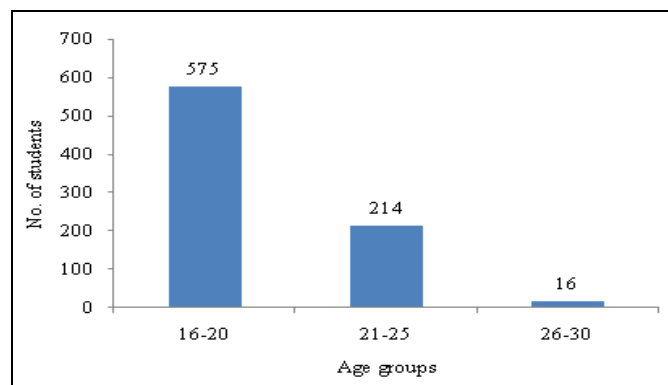| Age (in years)	No. of subjects
16-20 (years)	575
21-25 (years)	214
26-30 (years)	16

FIG. 1: AGE GROUP DISTRIBUTION OF STUDY POPULATION

TABLE 2: PERCENTAGE OF STUDENTS IDENTIFIED WITH PCOS

S. no.	Age (in years)	Total no. of subjects surveyed	Total no. of subjects identified with PCOS symptoms	Percentage of subjects with PCOS symptoms	Subjects already diagnosed with PCOS	Percentage (%) diagnosed with PCOS	Subjects undiagnosed with PCOS	Percentage (%)undiagnosed with PCOS
1	16-20	575	155	26.9%	7	1.2%	148	25.7%
2	21-25	214	78	36.4%	8	3.7%	70	32.7%
3	26-30	16	5	31.2%	2	12.5%	3	18.7%

TABLE 3: MEAN HEIGHT, MEAN WEIGHT, MEAN BMI

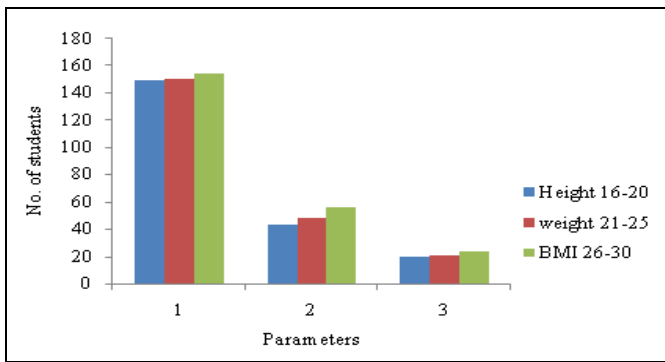| S. no.	Age (in years)	Mean height (cm)	Mean weight (kg)	BMI (kg/m^2)
1	16-20	149.2	43.06	19.02
2	21-25	150.8	47.86	20.57
3	26-30	154.3	55.9	23.2

FIG. 2: MEAN HEIGHT, MEAN WEIGHT, MEAN BMI

TABLE 4: TOTAL NUMBER OF SUBJECTS IDENTIFIED WITH PCOS SYMPTOMS

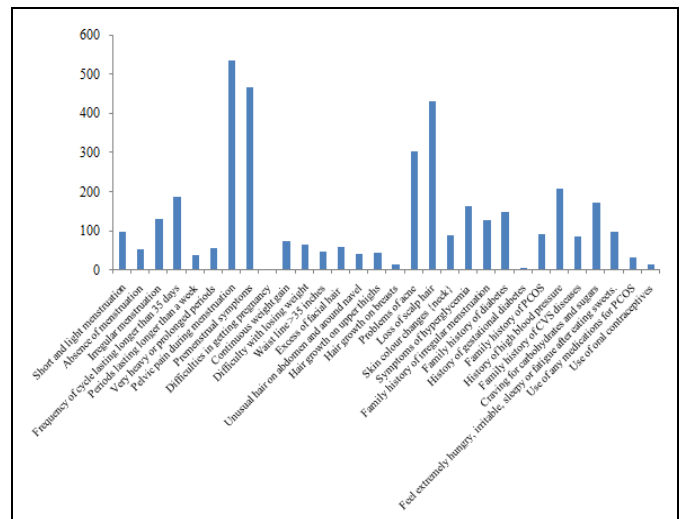| S. no.	Parameters	No. of subjects identified with parameters
1	Short and light menstruation	99
2	Absence of menstruation	54
3	Irregular menstruation	131
4	Frequency of cycle lasting longer than 35 days	187
5	Periods lasting longer than a week	39
6	Very heavy or prolonged periods	57
7	Pelvic pain during menstruation	535
8	Premenstrual symptoms	465
9	Difficulties in getting pregnancy	4
10	Continuous weight gain	74
11	Difficulty with losing weight	65
12	Waistline >35 inches	47
13	Excess of facial hair	60
14	Unusual hair on the abdomen and around the navel	41
15	Hair growth on upper thighs	44
16	Hair growth on breasts	15
17	Problems of acne	304
18	Loss of scalp hair	432
19	Skin colour changes {neck}	88
20	Symptoms of hyperglycemia	163
21	Family history of irregular menstruation	128
22	Family history of diabetes	148
23	History of gestational diabetes	6
24	Family history of PCOS	91
25	History of high blood pressure	208
26	Family history of CVS diseases	85
27	Craving for carbohydrates and sugars	173
28	Feel extremely hungry, irritable, sleepy or fatigue after eating sweets	97
29	Use of any medications for PCOS	32
30	Use of oral contraceptives	14

FIG. 3: NUMBER OF SUBJECTS IDENTIFIED WITH PARAMETERS

TABLE 5: TOTAL NUMBER OF SUBJECTS HAVING MAJOR PCOS SYMPTOMS

S. no.	PCOS symptoms	No. of subjects
1	Short and light menstruation	99
2	Absence of menstruation	54
3	Irregular menstruation	131
4	Very heavy and prolonged periods	57
5	Continuous weight gain	74
6	Waist line > 35 inches	47
7	Excess of facial hair	60
8	Skin color changes {nape of the neck}	88
9	Family history of irregular menstruation {mother}	128
10	Family history of PCOS	91

TABLE 6: TOTAL NUMBER OF SUBJECTS HAVING OLIGOOVULATION

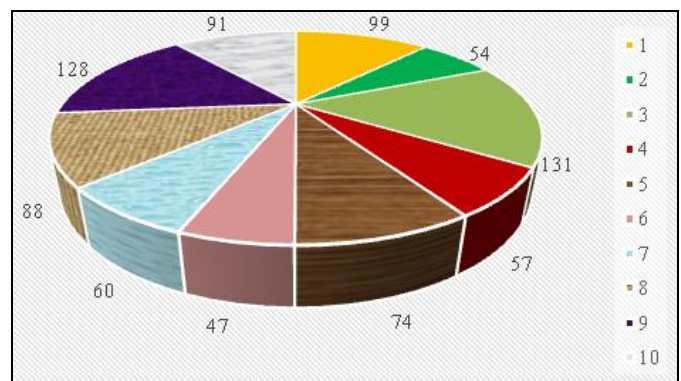| S. no.	Age (in years)	Total No. of subjects	Total No. of subjects having Oligoovulation	Percentage of subjects having Oligoovulation
1	16-20	575	69	12%
2	21-25	214	43	20%
3	26-30	16	2	12.5%

FIG. 4: TOTAL NO. OF SUBJECTS HAVING MAJOR PCOS SYMPTOMS

TABLE 7: TOTAL NUMBER OF SUBJECTS HAVING ANOVULATION

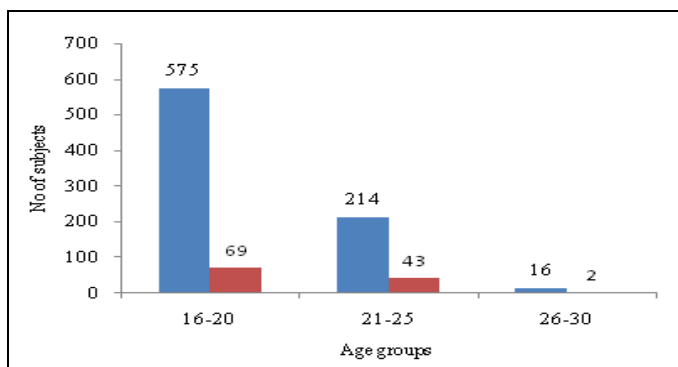| S. no.	Age (in years)	Total no. of subjects	Total No. of subjects having Anovulation	Percentage of subjects with Anovulation
1	16-20	575	35	6.08%
2	21-25	214	15	7%
3	26-30	16	1	6.25%

FIG. 5: TOTAL NUMBER OF STUDENTS HAVING OLIGOOVULATION
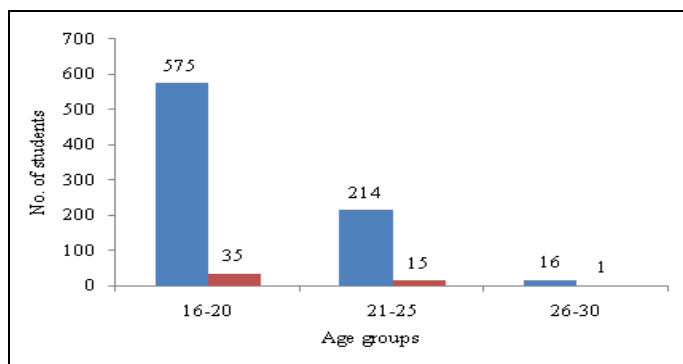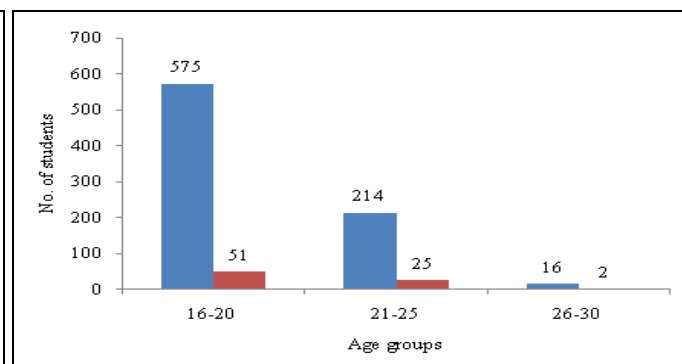

FIG. 6: TOTAL NUMBER OF STUDENTS HAVING ANOVULATION

FIG. 7: TOTAL NUMBER OF STUDENTS HAVING HIRSUTISM

CONCLUSION: Polycystic ovarian syndrome is a major burning issue among adolescent females and adulthood. The crude prevalence rate determined from this study was 30%.

The results of our study show that very few of the young women know what actually this disease is and what are the earliest symptoms that should alarm them to consult a physician. Subjects identified with PCOS symptoms, we advise them to consult gynaecologists and early recognition, accompanied by prompt treatment with the medications to treat presenting symptoms.

Prevention is better than cure.
Don't let PCOS define you!!!
Stay strong because you're worth it!!!!!!

Keep checking yourself whether you are feeding the disease (junky) or fighting the disease (healthy).

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