PREVALENCE OF POLYCYSTIC OVARIANE SYNDROME AMONG YOUNG GIRLS AT SELECTED SCHOOLS AND COLLEGES IN CHENNAI

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Abstract

Polycystic ovarian syndrome (PCOS) is a disorder in which women produce an excess of male hormones. Menstrual abnormalities, infertility, excessive hair growth, mostly on face and body, acne, hair loss, and obesity are caused by increased male hormone levels in the body. A descriptive study was conducted among young girls between age from 13 to 21 years at Hilton Matriculation Higher Secondary School and Tagore College of Nursing. 200 young girls were assessed based on Rotterdam criteria using self- structured questionnaire and various scales. Non probability convenient sampling technique was used. The study was approved by Tagore institutional ethics committee. Written consent was acquired from every one of the study participants. The study revealed that among 200 young girls 41(21%) of the girls had hirsutism, 58(29%) of them had acne issues and 74(37%) of them had alopecia. The study also shown that 41(21%) of them had PCOS based on Rotterdam criteria and 159(79%) had no PCOS. Hence the prevalence of PCOS among young girls is 21%.

Keywords: Acne- global acne grading scale [GAGS]:

INTRODUCTION

Polycystic ovarian syndrome (PCOS) is a disorder in which women produces an excess of male hormones. Menstrual abnormalities, infertility, excessive hair growth mostly on face and body, acne, hair loss, and obesity are all caused by increased male hormone levels in the body. PCOS affects women between the ages of 15 and 44, when they are in reproductive age. The World Health Organization (WHO) data suggests that approximately 116 million women are affected by PCOS globally. PCOS affects 4%–20% of women of reproductive age worldwide. Prevalence of PCOS in India ranges from 3.7 to 22.5 % depending on the population studied and the criteria usedfor diagnosis. According to National health portal, in South India, prevalence of PCOS (by Rotterdam's criteria) was reported as 9.13%. A cross sectional study conducted in Tamil Nadu assessed adolescent females and found a prevalence of 18% for PCOS. It is estimated that one in five (20%) Indian women suffer from PCOS. Studies shown that 52% of Asian women who reside in the Indian subcontinent show PCOS, which is considered to be the highest reported prevalence. According to a study by PCOS Society, one in every 10 women in India has PCOS. Out of every 10 women diagnosed with PCOS,six are young girls. More than 80% of young girls presenting with symptoms of androgen excess have PCOS. Hirsutism is a common clinical presentation of hyperandrogenism occurring in 70% of young girls with PCOS.

MATERIALS AND METHODS:

A descriptive study was conducted in selected school and college at Chennai. Young girls, Age (13-21 years) who met with the inclusion criteria, were taken as samples. A total of 200 young girls were screened based on selected Rotterdam criteria and recruited. The samples were selected from Hilton Matriculation Higher Secondary School and Tagore College of Nursing. Self-administered questionnaire for demographic data and gynecological data were used to collect the baseline data and menstrual history. Modified Ferriman Gallwey scale, Ludwig visual score, Global acne grading scale were used to assess the hyper androgenic symptoms like hirsutism, alopecia and acne respectively. Non probability convenient sampling technique was used. The study was approved by Tagore institutional ethics committee. Written consent was acquired from every one of the study participants.

ROTTERDAM DIAGNOSTIC CRITERIA:

The Rotterdam criteria for PCOS are used by a wide range of medical professional redus According to Rotterdam criteria diagnosis requires presence of at least two of the following three findings: ovulatory dysfunction (oligomenorrhoea, Hyperandrogenism & polycystic ovaries (ultrasound). In this study the researcher used oligomenorrhoea and Hyperandrogenism to confirm the diagnosis.

1. Oligomenorrhoea: self-administered questions to obtain gynecological data such as age at menarche, menstrual cycle length, no of menstrual cycles in a year, menstrual flow duration, family history of PCOS.

2. Hyperandrogenism: various scales were used such as Modified ferriman gallwey (hirsutism), Global acne grading scale (acne) and Ludwig alopecia scale (alopecia).

1. Modified ferriman gallwey scale for measurement of hirsutism:

The degree of hirsutism (lips, chin, hands & legs, breast, abdomen, public area, lower & upper back) of each area was scored using 4 grade scale ranged from 0-4. Where 0 representno hair growth and 4 means maximum hair growth. In present study score more than 8 was considered significant.
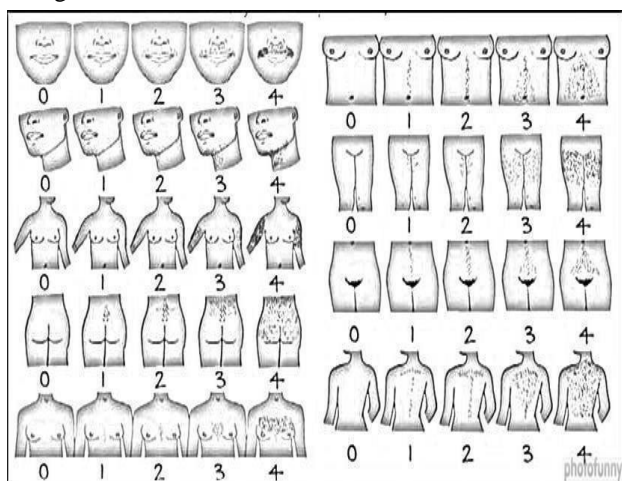
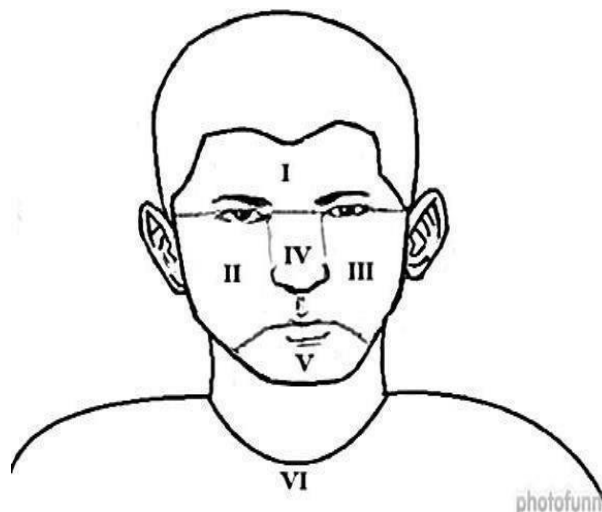| SCORE	INTERPRETATION
0	No hirsutism
8-16	Mild hirsutism
17-25	Moderate hirsutism
>25	Severe hirsutism

2. Androgenic alopecia- Ludwig visual alopecia scale:

The Ludwig's scale is used to classify female pattern baldness characterised by thinning of the hair on the crown to full baldness range from stage I to III. Stage II and III one considered significant.

3. Acne- global acne grading scale [GAGS]:

The global acne grading scale is quantitative screening system to assess the severity of acnepresent on forehead, cheeks, nose, chin, chest & upper back. In present study Score more than 18 is considered significant.

SCORE	INTERPRETATION
0	No acne
1-18	Mild acne
19-30	Moderate acne
31-38	Severe acne
>39	Very severe acne

Data analysis:

Data analysis was done by using descriptive statistics.

SCHEMATIC REPRESNTATION OF DATA COLLECTION PROCEDURE

RESULT AND DISCUSSION:

Screening for PCOS based on Rotterdam criteria.
Demographic data, gynaecological data and various scales to
elicit hyper androgenic symptoms
symptomes. n=200

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Convenient sampling techniques.

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Menstrual irregularity n=49   Hirsutism n=41   Acne n=58   Alopecia n=74

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Combined n= 41

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Statistical analysis.

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Result and discussion

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Conclusion
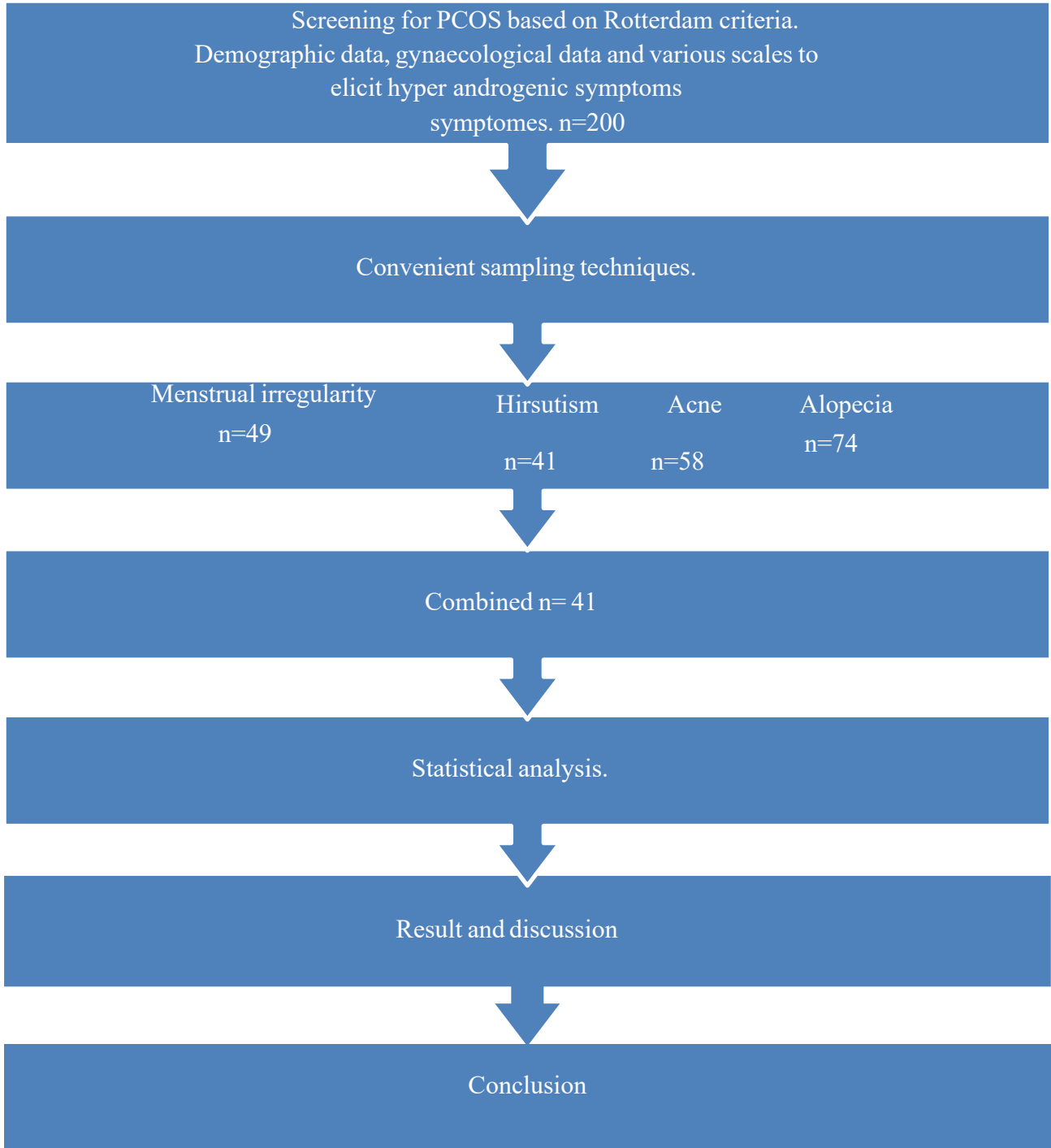
RESULT AND DISCUSSION:

TABLE 1 : FREQUENCY AND DISTRIBUTION OF GNAECOLOGICALVARIABLES OF STUDY PARTICIPANTS

n=200

Gynaecological Variables	Frequency	Percentage
1. Menstural cycle length in days		
a. <21 Days	49	25
b. 21 – 35 Days	102	51
c. > 35 Days	29	14
d. Irregular length	20	10
2. No of Menstrual cycles in previous year		
a. > 12 Cycles	75	38
b. 9 – 12 Cycles	83	41
c. < 8 Cycles	42	21
3. Menstrual flow duration in days		
a. < 3 Days	47	24
b. 3 – 5 Days	107	53
c. > 5 Days	46	23
4. Family history of polycystic ovarian syndrome		
a. Yes	59	30
b. No	141	70

Table 2 shown that frequency and distribution of gynaecological variables of study participants. In regard to the menstrual cycle length girls with <21 days were 49(25%), 21- 35 days were 102(51%), >35 days were 29(14%) and girls with irregular length were 20(10%). Regardingthe number of menstrual cycles in previous years were 75(38%) girls had >12 cycles, 83(41%) of the girls had 9-12 cycles and 42(21%) girls had <8 cycles. Regarding the menstrual flow 47(24%) of the girls had <3 days flow, 107(53%) had 3- 5 days flow and 46(23%) had > 5 days flow. 59(30%) of the girls had family history of PCOS and 141(70%)of the girls had no family history of PCOS.
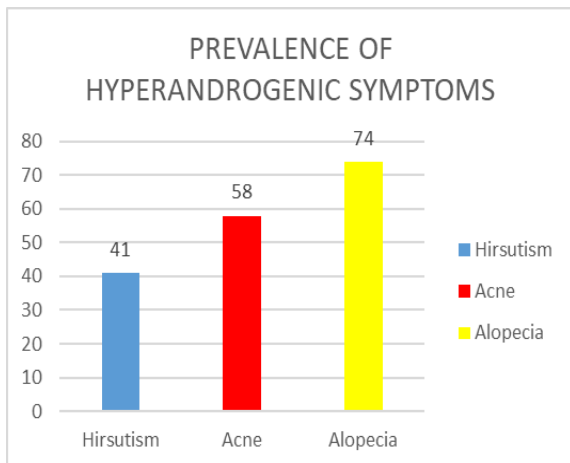
TABLE-2: PREVALENCE OF HYPERANDROGENIC SYMPTOMS LIKE HIRSUTISM, ACNE AND ALOPECIA AMONG YOUNG GIRLS.

n=200

S.NO	HYPERANDROGENIC SYMPTOMS	FREQUENCY	DISTRIBUTION
1.	Hirsutism	41	21
2.	Acne	58	29
3.	Alopecia	74	37

FIGURE 1: PREVALENCE OF HYPERANDROGENIC SYMPTOMS

Table 2 and Fig 1 shows the prevalence of hyperandrogenic symptoms. Among 200 young girls 41(21%) of the girls had hirsutism, 58(29%) of them had acne issues and 74(37%) of them had alopecia.

TABLE 3: PREVALENCE OF PCOS AMONG YOUNG GIRLS.

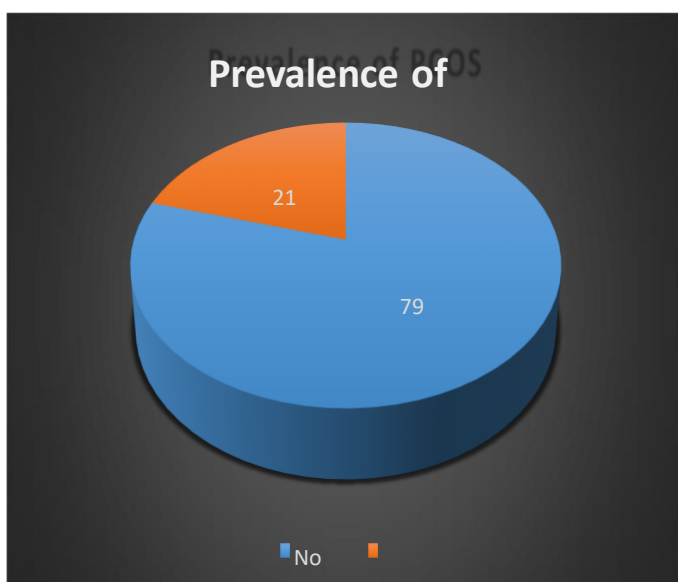| Prevalence of PCOS	Frequency	Percentage
No PCOS	159	79%
PCOS	41	21%
Total	200	100%

Table 3 and Fig 2 shows the prevalence of PCOS among young girls. 41(21%) of them had PCOS based on Rotterdam criteria and 159(79%) had no PCOS. Hence the prevalence of PCOS among young girls is 21%.

In concordance with the present study Aziz (2019) conducted a study and showed result on prevalence of PCOS was 20.6%. Meenakumari etal (2017) conducted a study and showed the result for prevalence of PCOS 4.5%. Teresina (2017) showed result on prevalence of PCOS is 6.8%. Vidya Bharathi (2017) conducted a study and showed result on prevalence of PCOS 16.9%. Laddad etal (2017) conducted a study and showed result the result for prevalence of PCOS 5.6%. Ramanan (2017) showed result on prevalence of PCOS 9.84%. Gulta (2017) conducted a study among 500 college girls aged 17 to 24 years reported a prevalence rate of 8.2 %.

Bhuvaneshwari etal conducted a study and showed result for prevalence of PCOS 6.8%. Kabul Bakar conducted a study (2019) and showed result for prevalence of PCOS 7.9 %. Choudary (2019) evaluates showed higher prevalence of 41% with menstrual irregularities. Duru Shah conducted a study showed result on prevalence of PCOS 20% (2019). Moorthy Janani (2019) conducted a study and showed a result of prevalence of PCOS 23.3%. Priyanka (2019) conducted a study and showed a result on prevalence of PCOS.

Joshie etal (2022) conducted a study and showed the result for prevalence of PCOS was 8.1%. Bhumika Pruthi (2019) conducted a study and showed prevalence of PCOS was 20%. Rozati (2021) conducted a study and showed prevalence of PCOS was 20. Malik etal (2021) conducted a study and showed result of prevalence of PCOS was 22.5. According to Ali (2021) the prevalence of PCOS was 29.6%. Vishnudevan (2022) showed the prevalence of PCOS was 22.6. Sadhana kala (2022) showed the prevalence of PCOS was 22.5%. Niveditha (2022) found the prevalence of PCOS was 22.9. Ranjani (2022) showed the prevalence of PCOS was 20. Deepa Switha (2022) revealed the prevalence of PCOS was 23.7. According to Shweta (2022) the prevalence of PCOS was 22.1. Mahesh (2023) conducted a study and showed the prevalence of PCOS was 26.4.

CONCLUSION:

Due to the scientific advancements, the common lifestyle exercises are being replaced with modern inventions and technologies. Most of the young girls follow sedentary lifestyle like watching TV, playing video games, spending too much of time in social media, and other gadgets. Thus, the prevalence of PCOS is significantly increased. Lifestyle alterations such as proper diet, exercise, stress free life, a good rest and sleep are associated with less risk, least cost and do not cause any ill effects on the reproductive system of adolescent girls. Thus, it is beneficial considering lifestyle modifications as a propitious approach for reducing the risk of PCOS. Weight loss is considered as an important treatment modality for PCOS. Weight loss improves physiological, biochemical and psychological parameters of PCOS.

Conflicts of Interest: The authors declared no competing interests.

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