

“Awareness of PCOS (Polycystic Ovarian Syndrome) Among Female Medical Students.”

Dr. Leena Jaiswal¹, Dr. Aditi Bahekar², Dr. Sheetal Bhadra³

¹Department of physiotherapy(CBR), the oxford college of physiotherapy, Bangalore, RJUHS, Karnataka

^{2,3}Department of physiotherapy, S.R Pandav college of physiotherapy, Nagpur, MUHS, Nashik

ABSTRACT

Background: Polycystic ovarian syndrome (PCOS) is a condition in which women has an imbalance of female sex hormones. This may lead to changes in the menstrual cycle, cyst in the ovary, failure to conceive and other health problems. It is common health problem among teenagers and young women. These problems cause infertility.

Methods: A descriptive cross sectional study consisting of 54 female medical students 18- 27 years of age. The data was collected from the students by using PCOS awareness questionnaire.

Statistical analysis: Table and graphs were prepared using Microsoft word and excel software. Statistical software STATA version 14.0 was used for data analysis.

Results: The result analysed with epiinfo software and was found that 85.37% of girls were aware of PCOS while 14.63% of girls were unaware of PCOS.

Conclusion: most of the females are aware about PCOS but those who are not aware about PCOS have to educate about the risk factors of PCOS. Girls who had irregularity of menses should be investigated and must be managed accordingly.

Keywords [Awareness, PCOS, Questionnaire, Adolescent girls, Medical students]

Date of Submission: 10-01-2024

Date of acceptance: 20-01-2024

I. INTRODUCTION

Adolescent period is a unique period where there is a change from childhood to adulthood, a time of physiological, psychological, social and emotional adaptation. During this period individual attains physical and sexual maturity, whereas emotional maturity will be imbalanced. The changes in adolescent period have important implication to understand the health risks associated with this syndrome

Polycystic ovarian syndrome (PCOS) is a condition in which women 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 common health problem among teenagers and young women.⁽¹⁾ These problems cause infertility.⁽¹⁾ Although there is no cure for PCOS.⁽¹⁾ There are several ways to treat and manage the condition.⁽¹⁾ If the girl is overweight, weight loss can be very effective in many of the health conditions associated with PCOS.⁽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⁾

Etiology of PCOS is unknown. Many studies suggest that inherent abnormalities of ovarian steroidogenesis and follicular development play a role in the PCOS. The syndrome is also associated with persistently rapid gonadotropin-releasing hormone(GnRH) pulses, an excess of LH, and insufficient FSH secretion, which contribute to excessive ovarian androgen production and ovulatory dysfunction.⁽²⁾

Sometimes weight loss can restore hormone level to normal, causes many of the symptoms to disappear or become less severe.⁽¹⁾ Healthy food habits and exercise helps to combat the weight gain.⁽¹⁾ Lack of knowledge and lifestyle changes are considered to be the major factor leading to this phenomenon.⁽¹⁾ There is 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.⁽¹⁾ In more than 40% of cases, PCOS is associated with obesity as well as impaired glucose tolerance, type 2 diabetes, and the metabolic syndrome.⁽⁴⁾ PCOS is being under evaluated and possibly underdiagnosed in the adolescent population.⁽⁵⁾ Awareness of PCOS and diagnosis must be increased among physicians caring for adolescent girls.⁽⁵⁾ Give 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 the wonder why there is such a lack of awareness about PCOS.⁽⁵⁾

There is increase in 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 polycystic ovaries syndrome is considered to be most prevalent of all endocrine disorders which women face.⁽⁷⁾

The diverse manifestations of PCOS start at an early age when a girl is maturing into young women.⁽⁹⁾ It is important to make an early diagnosis in order to prevent early and late sequel of the syndrome.⁽⁹⁾ 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.⁽⁹⁾ Increased awareness of PCOS in young females is needed.⁽⁹⁾

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.

II. METHODS

Methodology

- **STUDY DESIGN:** Cross sectional study
- **STUDY SETTING:** medical college
- **DURATION OF STUDY:** 1 year 6 months
- **STUDY POPULATION:** females in medical college. (AGE 19-25)
- **SAMPLE SIZE:** 54
- **SAMPLE SIZE CALCULATION:** considering % of adolescent and young girls had awareness about PCOS reported in published article [reference: awareness of PCOS (polycystic ovarian syndrome) in adolescent and young girls] with the following assumptions
% of adolescent and young girls had awa about PCOS, p = 72 %

Absolute precision, d = 12%

Desired confidence level (1- α) % = 95%

Required sample size = 54

- **SAMPLE SIZE ESTIMATION FORMULA**

$$n = \frac{z_{1-\alpha/2}^2 \times p \times (1-p)}{d^2}$$

where,

P = prevalence

d = absolute precision

$Z_{1-\alpha/2} = 1.96$ for 95% confidence level

- **SAMPLE TECHNIQUE:** Convenient sampling

METHOD OF SELECTION OF STUDY SUBJECTS

➤ **INCLUSION CRITERIA:** -

1. medical students

2. age of participant is between 18-25 years old.

3. only females

➤ **EXCLUSION CRITERIA:** -

1. The students who are not voluntarily willing to participate in the survey.

2. participants age less than 18, or more than 25 years old.

➤ **WITHDRAWAL CRITERIA:** -

1. students who have filled incomplete questionnaire.

METHODS OF MEASUREMENTS

Questionnaire- consisted of 3 sections

1.First section: -

- Demographics of medical students towards polycystic ovarian syndrome.
- It contains 19 questions about several factors including age, college, height, weight, duration of menstrual cycle.
- Also questions to determine if the students suffered from any of the PCOS symptoms.

2.Second section: -

- To assess the knowledge of polycystic ovarian syndrome among medical students, (Q20-23)

3.Third section: -

- To find out, the number of students who had, the syndrome and if they had taken treatment.
- To assess the family history of polycystic ovarian syndrome, diabetes, high blood pressure or endocrine disorders.
- Finally, open-ended question to evaluate, the attitude and practices prevalent in the community, regarding PCOS. (Q24-30)

Questionnaire (PCOS AWARENESS QUESTIONNAIR)

[Ali et al., Vol.6 (Iss.9): September 2018]

ISSN-2350-0530(O), ISSN- 2394-3629(P)

DOI: 10.5281/zenodo.1451882 (Received: August 23,2018 – Accepted: September 27,2018)

Do you want to participate? Yes No. ----- Please answer the questions to the best of your knowledge and ability by filing in the blanks and marking your choice of answers with a tick mark (√).

1. your Name (optional): _____
2. your college: Applied medical sciences Medicine Computer Sciences College of Business & Economics other: _____
3. What is your current age? _____ years.
4. Please, Indicate your current Height: _____ cm.
5. Please, Indicate your current Weight: _____ kg.
6. Are you married? Yes No
7. (If Yes) Do you feel problem in conception? Yes No
8. What is the duration of your monthly menstrual cycle? _____ days. Question Yes No

Questions	Yes	No
9. Do you suffer from irregular menstrual cycle? or no menstrual cycles?		
10. Do you suffer from Acne? or oily skin?		
11. Do you suffer from hair loss (or hair loss in particular area of the hair)?		
12. Did you experience excessive facial or body hair?		
13. Do you suffer from Weight gain?		
14. Do you suffer from Mood swings?		
15. Do you feel lonely, loss of interest, or very aggressive frequently?		
16. Do you experience frequent Headache, dizziness?		
17. Do you suffer from chronic, frequent lower back pain?		
18. Do you observe any change in voice?		
Questions	Yes	No
19. Do you get tired easily / feel weakness?		

20. If You Suffer from 2 or more of these Symptoms, are you going to visit a gynaecologist? Yes No
21. If No, why? _____
22. Did you hear about Polycystic Ovary Syndrome? Yes No
23. If Yes, From Where? Television Internet/Social Media people Hospital Other: _____
24. Do you suffer from Polycystic Ovary Syndrome (Diagnosed)? Yes No
25. If Yes, did you treat the syndrome? Yes No 26. If Yes, could you mention the treatment? 27 _____
27. Does your mother / sister suffer from similar symptoms? Yes No
28. Have they been investigated & diagnosed? Yes No
29. Do you have family history of Diabetes, High blood pressure or Endocrine disorders (Diagnosed)? Yes No.
30. What do think about this disorder? What are the thoughts common in the population

III. RESULTS

41 students in Maharashtra university whose age were between 18-25 years participated in study. The main demographic of the students were presented in table 1,2 and 3, fig 1 and fig 2.

Table No 1. Age distribution of study population.

Age in years	No. of students	Percentage
19 - 20	8	19.51
21 – 22	11	26.83
23 - 24	18	43.90
25 – 26	4	9.76
TOTAL	41	100

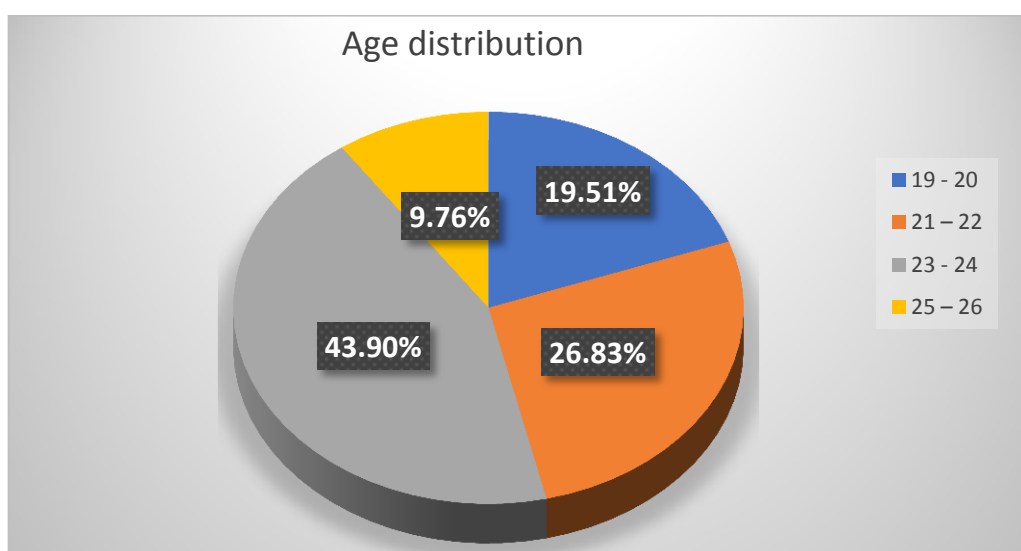


Fig no 1.

Table No 2. Distribution of study population according to weight in kg.

Weight in kg	No. of students	Percentage
≤40	3	7.32
41 - 50	10	24.39
51 - 60	17	41.46
61 - 70	9	21.95
>70	2	4.88
TOTAL	41	100

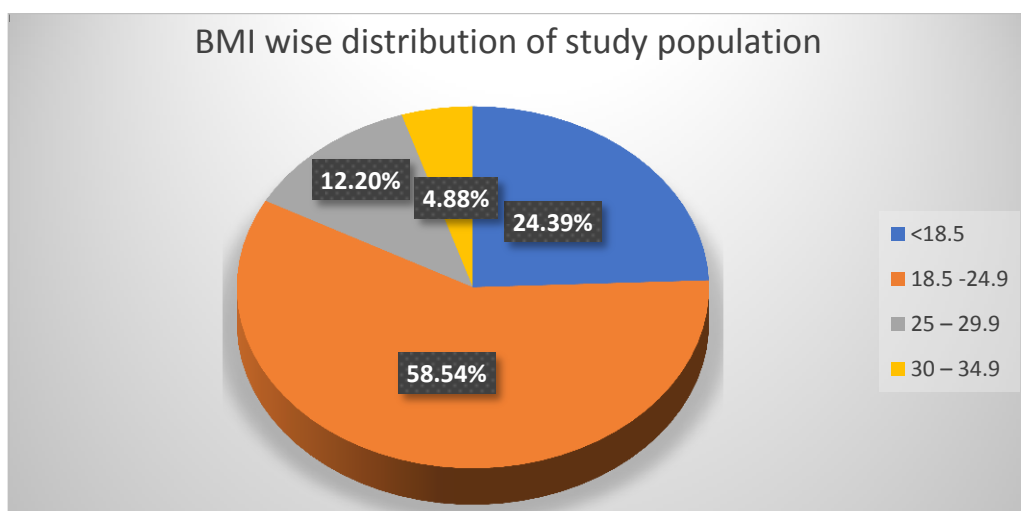


Fig no 2.

Table No 3. Distribution of study population according to height in cm.

Height in cm	No. of students	Percentage
145 - 150	3	7.32
151 - 155	5	12.20
156 - 160	10	24.39
161 - 165	12	29.27
166 - 170	7	17.07
>170	4	9.76
TOTAL	41	100

According to the questionnaire, out of these 41 students 31.71% suffered from irregular menstrual cycle or no menstrual cycle. Also, we evaluated the prevalence of the other symptoms of polycystic ovary syndrome, based on our finding. 58.54% students suffered from hair loss. Other symptoms included: Acne and oily skin, hair loss weight gain, mood swings, frequent headache, frequent lower back pain, voice change and feel weakness are presented in Table 4, fig 3.

Table No 4. Common symptoms among students who suffer from PCOS

Symptoms	No. of students	Percentage
Irregular menstrual cycle	13	31.71
Acne/hair loss	25	60.98
Hair loss(or hair loss in particular area of hair)	24	58.54
Excessive facial/body hair	10	24.39
Weight gain	17	41.46
Mood swing	26	63.41
Feel lonely/loss of interest/very aggressive frequently	23	56.10
Frequent headache/dizziness	16	39.02
Frequent lower back pain	17	41.46
Change in voice	2	4.88

Tired easily/feel weakness	26	63.41
----------------------------	----	-------

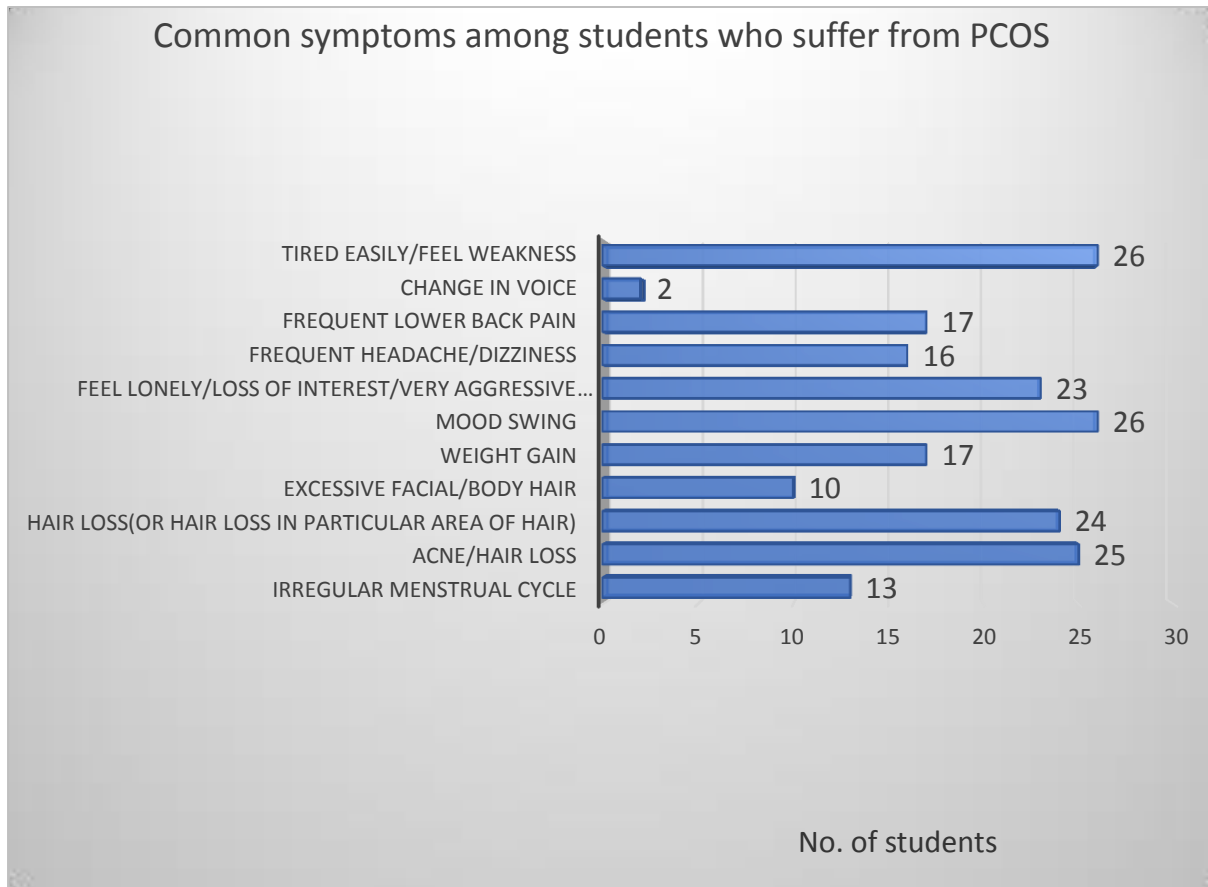


Fig no 3.

The majority of students 85.37% (n=35) heard about PCOS. 4.88% of students mentioned that the information source was people (mother, sister, etc). Followed by 29.27% students who mentioned internet as second source, Hospital as the third source of information were selected by 34.15% students, and TV 2.44% students reported as a source of information Table 5, fig 4.

Table No 5. Source of Knowledge about polycystic Ovary syndrome

	No. of students	Percentage
0	3	7.32
1	1	2.44
2	12	29.27
3	2	4.88
4	14	34.15
5	9	21.95

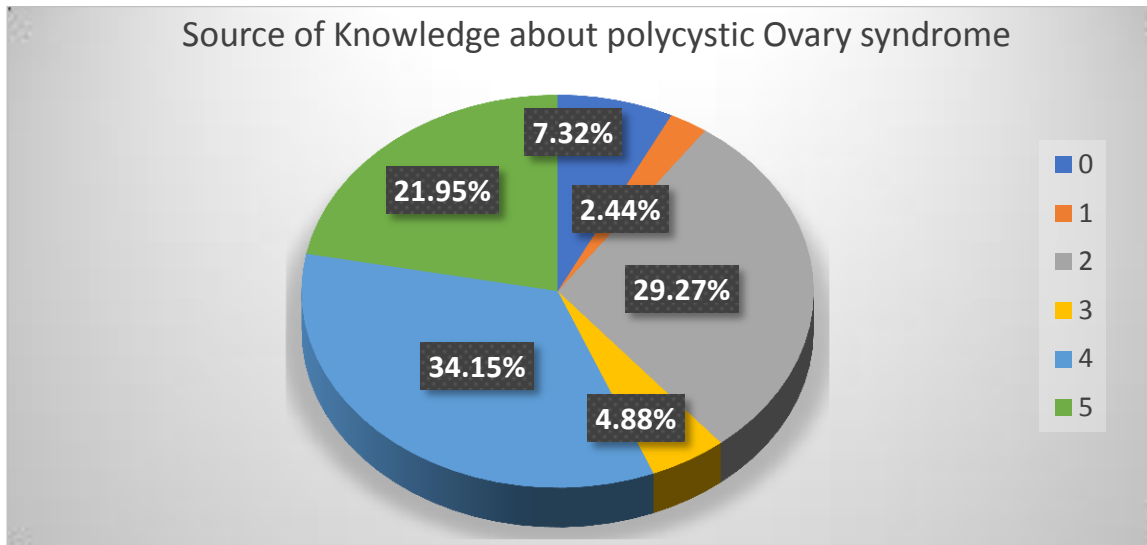


Fig no 4.

In addition, when we asked the students “If You Suffered from 2 or more of these symptoms, are you going to visit a gynaecologist?” 46.34% said “YES” and 53.66% said “NO” Table 6, fig 5.

Table No 6. Visit to gynecologist for suffering from 2 or more symptoms

Visit gynecologist	No. of students	Percentage
YES	19	46.34
NO	22	53.66

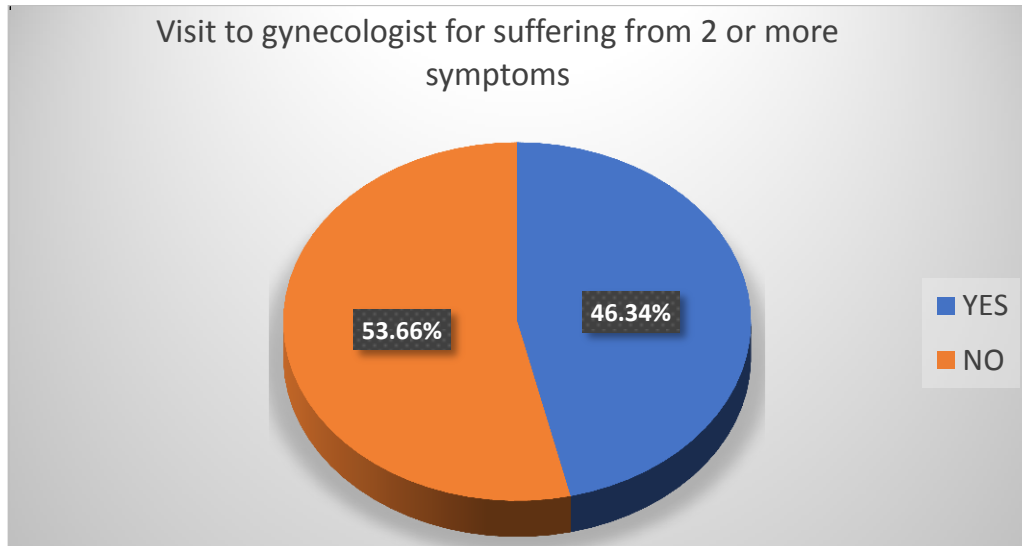


Fig no 5.

Data collected from PCOS students, 7.32%, their mother and sister also had similar symptoms, and 14.63% had investigation and diagnosed table 7(a,b), fig 6(a,b)

Table No 7.a Family history of polycystic Ovary syndrome (mother/sister)

	No. of students	Percentage
YES	3	7.32
NO	38	92.68

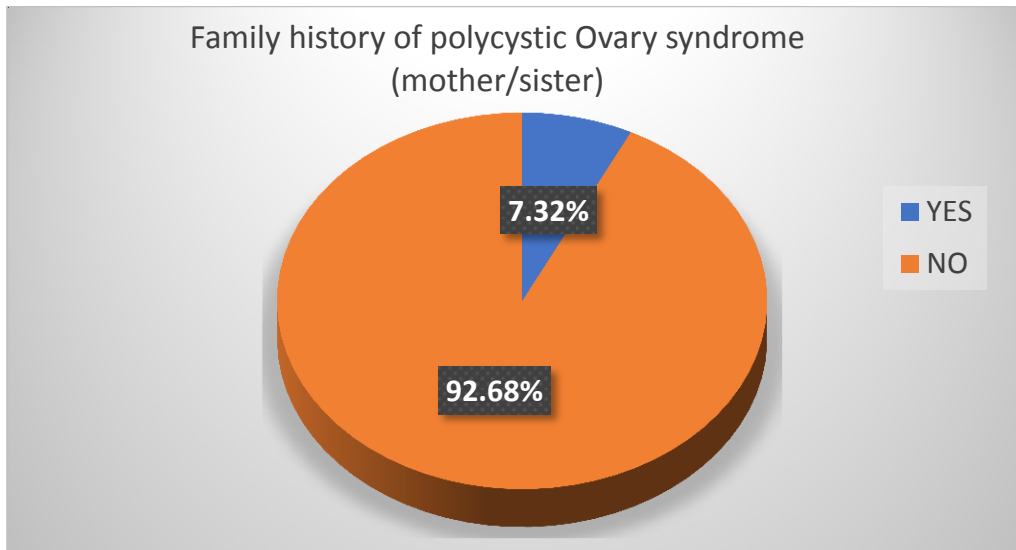


Fig no 6.a

Table No 7.b Investigation and diagnosed for PCOS

	No. of students	Percentage
YES	6	14.63
NO	35	85.37

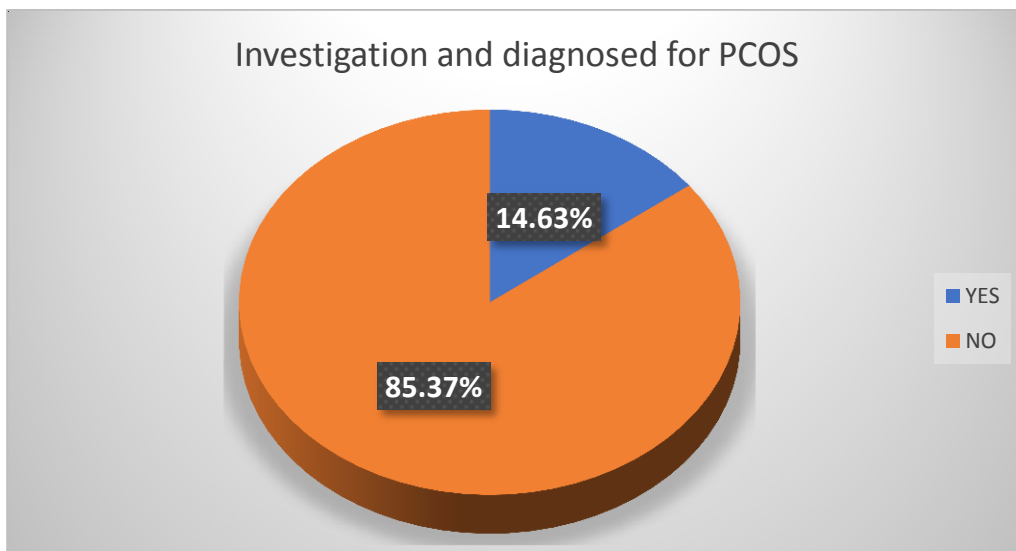


Fig no 6.b

34.15% of PCOS students had family history of Diabetes, High blood pressure or Endocrine disorder Table 8, fig 7

Table No 8. Family history of diabetes, high blood pressure/Endocrine disorder (diagnosed)

	No. of students	Percentage
YES	14	34.15
NO	27	65.85

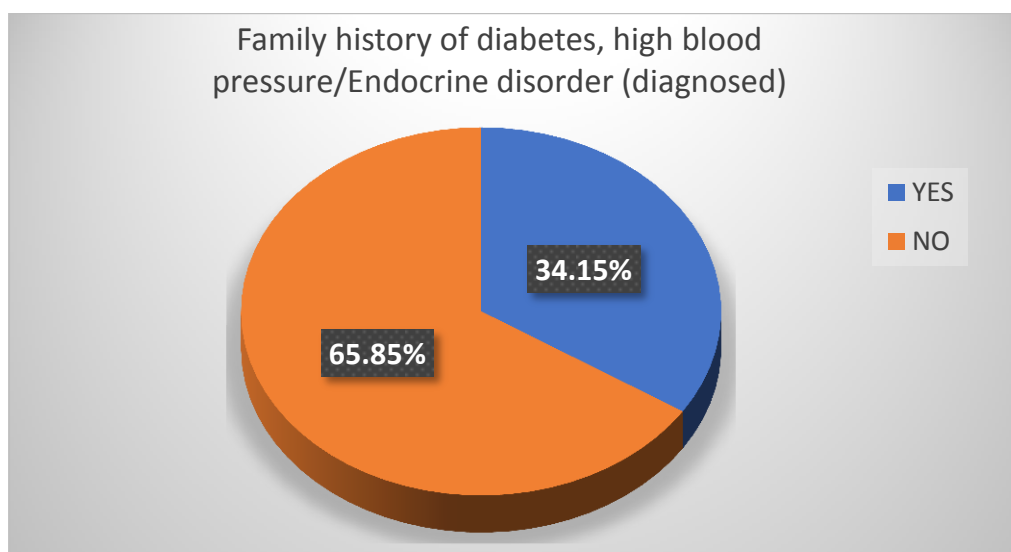


Fig 7

IV. DISCUSSION

Polycystic ovarian syndrome (PCOS) is a heterogeneous, chronic endocrine disorder commonly diagnosed in women of reproductive age. PCOS increases the risk for various dermatologic, oncologic, metabolic, reproductive, and psychological aberrations.

Total no of student who participated in this study was 41. Their age is between 18-25 years although PCOS can occur throughout reproductive age (Moran I; et al 2011). Out of these 41 students 85.37 % (n=35) heard about the polycystic ovarian syndrome.

According to the Questionnaire, 58.54% (n=24) of students included in study had hair loss, 63.41% (n=26) of students suffer from mood swings, 60.98% (n=25) suffer from acne and oily skin. Also 31.70% (n=13) of students have irregular menstrual cycle. All these symptoms are common in polycystic ovarian syndrome.

Only 19.57% (n=8) students suffer from PCOS. In relation to body mass index (BMI), 0% (n=0) were under weight, 75% (n=6) were normal weight, 25% (n=2) were overweight, 62.50% (n=5), which reflects the fact that weight gain is common finding in PCOS. Among those who had been diagnosed with PCOS, the most common symptoms is irregular menstrual cycle 75% (n=6), mood swings 88% (n=7), oily skin and acne 87.5% (n=7) and the least common symptoms is voice change 12.50% (n=1).

From the data collected from PCOS, 4.80% (n=2) their mother or sister also had similar symptoms, and they had been investigated and diagnosed. Also, 36.58% (n=15) of PCOS students have family history of diabetes, High blood pressure or endocrine disorders (diagnosed), which suggest that PCOS has a genetic role (Panda P; et al, 2016).

V. Conclusion

From this study, it is concluded that 90.24% of girls were aware of PCOS while 9.76% of girls were unaware of PCOS. Most common source of information about PCOS was hospital as the girls were medical students.

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

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

ACKNOWLEDGEMENTS

I would like to express my special thanks to the principal Dr. Diksha Nagrale Madam for providing me all that are required in completion of my synopsis.

I would also like to extend my gratitude to my guide Dr. Leena Jaiswal for her guidance in supporting my synopsis project.

Lastly I would like to devote my gratitude towards my friends and family for their love and support without which this efforts won't be fruitful.

DECLARATIONS

Funding: none

Conflict of interest: The authors declare no conflict of interest.

REFERENCES

- [1]. Jayshree J. Upadhye*, Chaitanya A. Shembekar. awareness of PCOS (polycystic ovarian syndrome) in adolescent and young girls. 11 May 2017
- [2]. Noura Mohammed AI Bassam¹, Dr. Sara Ali², Dr. Syed Raziur Rahman³. Polycystic ovarian syndrome (PCOS), awareness among female students, Qassim university, Qassim region, Saudi Arabia. September 27, 2018
- [3]. Sunanda B, Nayak S. A study to assess the knowledge regarding PCOS (polycystic ovarian syndrome) among nursing students at NUINS. NUJHS. 2016;6(3).
- [4]. 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.
- [5]. 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.
- [6]. Sanchez N. A life course perspective on polycystic ovary syndrome. *Int J Womens Health*. 2014;6:11522.
- [7]. 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.
- [8]. 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.
- [9]. 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):1520.
- [10]. 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:
- [11]. <http://www.indiatimes.com/health/healthyliving/1-in-5-women-affected-by-pcos-in-india-but-fret-not-we-have-the-solution-244753.html>
- [12]. 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.
- [13]. 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.
- [14]. 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
- [15]. 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.
- [16]. Radha P, Devi RS, Madhavi J. Comparative study of prevalence of polycystic ovarian syndrome in rural and urban population. *J Adv Med Dent Sci Res*. 2016;4(2):90-5.