



An Epidemiological Study to Assess the Risk Factors and Symptoms of PCOS

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Authors' contributions

This work was carried out in collaboration among all authors. Author DV designed the study, performed the statistical analysis, wrote the protocol. Authors KV and AM wrote the first draft of the manuscript, managed the analyses of the study and literature searches. All authors read and approved the final manuscript.

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ABSTRACT

The aim to present this study was to assess the most affected age group of girls from PCOD and to make them aware by our questionnaire in this descriptive study, 200 girls were selected randomly from hostels of MMDU, MULLANA. A questionnaire was formulated to obtain information regarding symptoms, changes, dietary patterns, etc. This data was differentiated, tabulated, and tested. The data collected shows that the majority of the respondents who participated in the survey were on the edge of PCOD.

Stein and Leventhal are regarded to have been the first investigators of polycystic ovary syndrome however, in 1721 Vallisneri, an Italian scientist; he described a married, infertile woman with shiny

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ovaries with a white surface, and the size of pigeon eggs. It was not until early 1990 at a national institute of Health (NIH) sponsored conference on PCOD that formal diagnostic criteria were proposed and afterward largely utilized. Many scientists tried to explain the pathophysiology of PCOS and many studies were made. It is now accepted that it is multifactorial, partly genetic, however, a number of candidate genes have been postulated. Insulin resistance has been noted consistently among many women with PCOS, especially in those with Hyperandrogenism, but it is not included in any of the diagnostic criteria. Now there is strong evidence that cardiovascular diseases risk factors and disturbances in carbohydrate metabolism are all increased in patients with PCOS compared to healthy populations. The criteria was established by a group of experts during a conference in ROTTERDAM held in 2003 are obligatory. The subsequent ROTTERDAM CRITERIA incorporated the size and morphology as determined by an ultrasound of the ovary into the diagnostic criteria. The Center for Disease Control and Prevention, obesity among children in the U.S. has tripled since 1980 due to various factors like bad eating habits, and lack of physical exercise, and many more children are getting more and more obese. Many researchers have found that PCOD findings are increasing with time. Finding insulin resistance in obese adolescents gave a different diagnosis of PCOD. Upon further clinical testing, many other symptoms are found like Hirsutism, acne, and menstrual abnormalities. Emans (2005) described PCOS as a diagnosis related to the diagnosis of insulin resistance, not being overweight. For insulin resistance, females don't need to be overweight, they will have insulin resistance even a normal weight female adolescents also have insulin resistance.

Keywords: PCOD; PCOS; menstrual abnormalities;

1. INTRODUCTION

“The term Polycystic Ovarian Syndrome (PCOD) was first described by IRVING STEIN and MICHAEL LEVENTHAL as a triad of AMENORRHOEA, OBESITY, and HIRSUTISM in 1935 When they observed the relationship between obesity and reproductive disorders. It is hence known as the STEIN –LEVENTHAL SYNDROME or HYPERANDROGENIC ANOVULATION (HA) and is the most common endocrine ovarian disorder affecting approximately 2-8% of women of reproductive age worldwide” [1]. “Nowadays it is also referred to as SYNDROME-O (over- nourishment), overproduction of insulin, ovarian confusion, and Ovulatory Disruption. So PCOS is called POLYCYSTIC OVARIAN SYNDROME. PCOS is currently considered a lifestyle disorder affecting 2.2-2.6% of young girls their reproductive age in INDIA. It is primarily characterized by an extremely irregular menstrual cycle in which ovulation may not occur. Normal pubertal events include OLIGOMENORRHEA, HIRSUTISM, ACNE, and WEIGHT GAIN” [2].

“PCOS causes the associated problems because polycystic ovaries are unable to produce the normal levels of hormones required to release one egg at ovulation each month. Multiprecysts start to develop as normal at the beginning of the cycle, but none of them reach the critical size needed for ovulation” [3,4]. Therefore progesterone is not produced and a bleed does

not occur the cysts formed also produced excessive amounts of male hormone [5].

1.1 The Common Associated Problems with PCOS Are

- Irregular Periods
- Acne
- Obesity
- High Blood Pressure
- High Cholesterol
- Type 2 Diabetes

“PCOS is a common disorder, often complicated by chronic ANOVULATORY infertility and HYPERANDROGENISM with the clinical manifestation of OLIGOMENORRHEA, HIRSUTISM, and ACNE. Many women with this condition are obese and have a higher prevalence of impaired glucose tolerance, type 2 Diabetes, and sleep APNEA than is observed in the general population” [6,7,8].

“It is possible to identify the early clinical manifestation of PCOS in late puberty and early adolescence. Diseases are on the rise because of lifestyle and environmental changes occurring with modernization [9-11]. Initially, the condition is asymptomatic in young women, progressing to produce menstrual irregularities; eventually, in late middle age, it leads to several health hazards. Given this and in fact, the prevalence of this syndrome in our community remains unknown” [7,12,13].

“It is important to try and control PCOS at a younger age to prevent the development of future problems. It is important to treat all the symptoms and not just focus on one such as trying for a baby. Regular diabetes testing should be done. The importance of a healthy diet, regular exercise and not smoking cannot be underestimated in trying to prevent the above-mentioned problems” [5].

1.2 Objectives

1. To Identify the girls who are at high risk of PCOS.
2. To Find the association between PCOS risk statuses with selected variables i.e. general health status. PCOS is a common disorder, often complicated by chronic ANOVULATORY infertility and hyperandrogenism with the clinical manifestation of oligomenorrhea, HIRSUTISM, and ACNE.
3. Many women with this condition are obese and have a higher prevalence of impaired glucose tolerance, Type 2 Diabetes, and sleep APNOEA than is observed in the general population. They exhibit an adverse cardiovascular risk profile, characteristic of the cardiometabolic syndrome as suggested by a higher reported incidence of hypertension, dyslipidemia, and obesity.
4. PCOS is frequently diagnosed by GYNAECOLOGISTS and it is therefore important that there is a good understanding of the long-term implications of the diagnosis to offer a holistic approach to the disorder.
5. To create awareness about PCOD among college going girls.

1.3 Prevalence of PCOS

Estimation of the 'true prevalence has to be made with caution as many of the data available were collected before the new ROTTERDAM diagnostic criteria. Most clinical data suggest a prevalence of 6-7% of the population.

1.4 Risk Factors of PCOD

1. CARDIOVASCULAR DISEASES – in January 1997 researchers in New Zealand

reported that women with multiple cysts on their ovaries were at increased risk of heart disease. In the study, 42% of women with heart disease also had 8/> ovarian cysts compared to 22% of women without heart disease.

2. OBESITY – obesity is also a feature observed and an estimated 50% of PCOS women classically presented in patients with upper body obesity which has been associated with menstrual disturbances.
3. INFERTILITY - another complicating feature of PCOD is the effects it has on ovulation and fertility with >75% of women with ANOVULATION infertility and treatment is based upon the patient's characteristics.

1.5 Causes of PCOD

Polycystic ovarian disorder is one of the most common reproductive problems with a broad spectrum of clinical manifestations affecting about 6 -8 % of women of reproductive years PCOS is seen today in almost 5 – 10% of women of reproductive age. PCOD seems to be a genetic disorder that runs in families. If other women in your family have it or have irregular periods or diabetes then your chance of having PCOD becomes higher.

PCOS can be passed down from either your mother or father's side. PCOS causes the related problems as ovaries are not efficient to produce the normal level of hormones that are required to release one egg at ovulation every month.

At the beginning of the cycle multiple cysts start to develop but they do not reach the size which is needed for ovulation.

So, due to this progesterone is not produced, and bleeding does not occur as normal. PCOS is also known by many other names.

Some of them are sclerocystic ovarian disease, stein- leventhal syndrome, and polycystic ovarian disease.

1.6 Complications of PCOS

Endometrial Cancer: The long-term follow-up of 786 PCOS women found an increased risk of endometrial cancer.

Complications in Pregnancy: Women with PCOS have a greater risk of complications, GESTATIONAL DIABETES, PRE- ECLAMPSIA, PRE- TERM LABOUR small for gestational age, and pregnancy-induced hypertension.

Sleep Apnea: It has been reported that women with PCOS have increased sleep-disordered breathing (SDB) AND daytime sleepiness.

Depression: There was a higher prevalence of depression in PCOS patients associated with higher body mass index and greater insulin resistance.

Hormonal Imbalance: Many women with PCOS are found to have an imbalance of certain hormones including.

Raised level of testosterone: A hormone often thought of as a male hormone usually women produce a very low level of it.

Raised level of luteinizing hormone: This hormone stimulates ovulation but it may have an abnormal effect on ovaries if levels are too high.

Low levels of sex hormone binding globulin: a protein in the blood which binds to testosterone and reduces the effect of testosterone.

Raised level of Prolactin (only in women with PCOS)-hormones that stimulate the breast gland to produce milk in pregnancy.

The exact reason why these hormonal changes occur is not known. It has been suggested that the problem may start in the ovary itself, other glands that produce these hormones, or in the part of the brain that controls their production. The changes may also be caused by the resistance to insulin.

PCOD sometimes runs in families if any relative, such as your mother, sister or aunt has PCOS then the risk of you developing it is often increased.

This suggests there may be a genetic risk link to PCOS although specific genes associated with the condition have not yet been identified.

1.7 Symptoms

“PCOD these days is becoming a very common endocrine disorder but still, clinical features, and

pathophysiology are not properly understood. PCOD is a condition that is understood by some common symptoms like menstrual irregularities. It is also characterized by elevated androgen levels, and small cysts on both the ovaries hyperandrogenism, are a clinical feature of PCOD that can cause inhibition of follicular development, micro cysts in ovaries, and menstrual changes” [5].

- Irregular periods – one of the most common symptoms of the disease is irregular periods. In this the period either gets disturbed or periods are irregular.
- Heavy bleeding – in this disease the period gets heavier than normal because the uterine lining builds up for a longer period.
- Hair growth – more than 70% of women with this condition grow hair on their face and body – including on their back, belly, and chest. Excess hair growth is called hirsutism.
- Acne – acne develops on the face in this disease as male hormones can make the skin oilier than usual and cause breakouts in areas like the face, chest, and upper back.
- Weight gain – up to 80% of women with PCOS are overweight or obese due to the formation of cysts and irregular periods.
- Male pattern baldness – hair on the scalp gets thinner and falls out.
- Darkening of the skin – dark patches of skin can form in the body and increase like those on the neck, in the groin, and under the breasts.
- Headaches- hormone changes can trigger headaches in some women which can further lead to several problems.

Research suggests that almost 5% to 10% of females of 18 to 44 years are most affected by PCOS and this is becoming the most common endocrine abnormality among women.

1.8 Treatment

“The most common age of onset of PCOS is adolescence while the common time of

diagnosis is during a woman's third or fourth decade of life because of major symptoms. Do not become evident until women reaches the age of 20 or 30 years even though some symptoms may start appearing in the menarche but the clear evidence is not shown as hormones are not started developing at the pubertal age, although PCOS is an endocrine disorder it affects may other systems of body resulting in reproductive, metabolic and psychological consequences" [2].

"Treatment for PCOS usually starts with lifestyle changes like weight loss diet and exercise. Losing just 5 to 10 % of your body weight can help regulate your menstrual cycle and improve PCOS symptoms.

Studies comparing diets for PCOS have found that low carbohydrate diets are effective for both weight loss and lowering insulin levels.

Exercise is even more beneficial when combined with a healthy diet. Diet plus exercise helps you lose weight more than either intervention alone, and it lowers your risks for diabetes and heart diseases" [1].

"PCOS treatment starts with lifestyle changes like diet and exercise. Losing just 5 to 10% of your body weight if you're overweight can help improve your symptoms.

A few studies have found that 30 minutes of moderate intensity exercise at least 3 days a week can help women with PCOS. Losing weight with exercise also improves ovulation and insulin levels.

Studies comparing diet for PCOS have found that low carbohydrate diets are effective for both weight loss and lowering insulin levels. A low glycemic index diet that gets most carbohydrates from fruits, vegetables and whole grains helps regulate the menstrual cycle better than a regular weight loss diet" [2].

"PCOS is a very common endocrine disorder encountered in women and is associated with problems, such as menstrual irregularities, hirsutism, obesity, insulin resistance, acne, and in later life infertility with diabetes mellitus and uterine cancer. Early diagnosis is necessary for early intervention to minimize the immediate and chronic consequences. The prevalence of PCOS among the girl's students has not yet been determined.

This study is an attempt to assess the prevalence of PCOS among the girls students in a college. We undertook a survey among the female students of Bishop Heber College, since students from all parts of India study here, the study population represents a random sample of female students in the college, and the age group was between 18-31 years.

The study period was five months from November, 2015 to March 2016. PCOD was diagnosed by using a questionnaire with Rotterdam's criteria and the prevalence was found to be 7.14%.

This study created awareness among the adolescent college girls about PCOD" [3].

2. METHODOLOGY

"The medical history was recorded with anthropometric, clinical, and biochemical parameters by using the questionnaire on whether the participants had been previously diagnosed with PCOS. A few questions were included to exclude thyroid disorders, hyperPROLACTINEMIA, and late-onset congenital adrenal hyperplasia. Menstrual irregularity was assessed as a usual cycle length of less than 21 days or more than 35 days. CLINICAL HYPERANDROGENISM was assessed based on the self-reported degree of HIRSUTISM BY USING SELF ASSESSMENT METHOD. The result was kept confidential. The selected participants likely to have PCOS were asked to go for further clinical and ovarian ultrasound examinations" [1,2].

This is a questionnaire-based study on the awareness of polycystic ovary disorder. The participants who undertook the survey are undergraduate and postgraduate girl students of a college. A total of 30 questions were asked to 200 girl students from various departments in the college and the age group was between 18 – 30 years. Individually was assured when the subjects filled out the survey. The questionnaire is filled in paper and pen method. After the data collection, statistical measurements are done. The questions include.

3. RESULTS AND DISCUSSION

The study population comprised about 200 girls from various departments. The study reveals that among 200 girls.

2. Are you following a low fat high carbs diet? [Copy](#)
197 responses

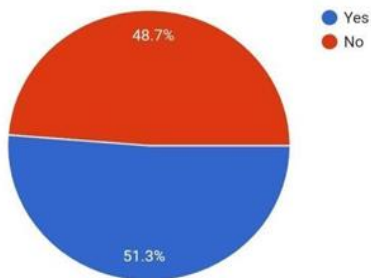


Fig. 1. Pie chart showing ratio of low fat and high carb diet

- Are you following a low fat high carbs diet?

Almost half, 48.7% of the people who responded to the survey said yes, they are following a low fat, high carbs diet.

Slightly more than half, 51.3% of the people who responded to the survey said no, they are not following a low fat, high carbs diet.

Overall, the survey results show that a low fat, high carbs diet is not the most popular diet choice among the people who responded to this survey.

4. Have you gained weight in the last 6 months? [Copy](#)
197 responses

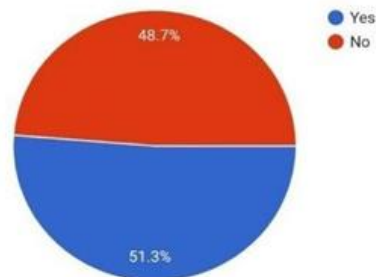


Fig. 3. Pie chart showing ratio of weight

- Have I gained weight in the last 6 months?

The red circle represents the percentage of people who have gained weight, at 48.7%. The blue circle represents the percentage of people who have not gained weight, at 51.3%.

In total, the survey results show that slightly more than half of the people surveyed did not gain weight in the last 6 months.

3. Are you following a low carbs high fat diet? [Copy](#)
194 responses

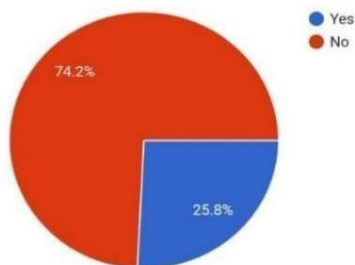


Fig. 2. Pie chart showing ratio of high fat and low carb diet

- Are you following a low carbs high fat diet?

The total number of respondents was 194. Out of the 194 people surveyed, 74.2%, or 144 people, answered yes. The remaining 25.8%, or 50 people, answered no.

5. Do you have acne or any skin related problem? [Copy](#)
196 responses

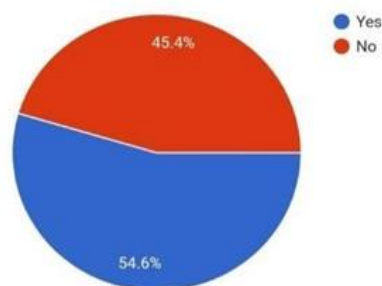


Fig. 4. Pie chart showing skin related issue

- Do you have acne or any skin related problem?

Out of 200 people surveyed, 108 (54.6%) said yes, they have acne or experience other skin problems.

The remaining 45.4% (92 people) said no.

6. Are you observing scalp hairfall?
196 responses

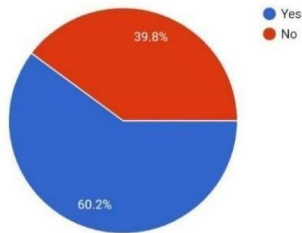


Fig. 5. Pie chart showing scalp hair fall ratio

- Are you observing scalp hair fall?

120 GIRLS OUT OF 200 HAVE HAIR FALL PROBLEM".

This translates to 60% of the girls surveyed experiencing hair loss.

7. Do you have facial hair growth?
196 responses

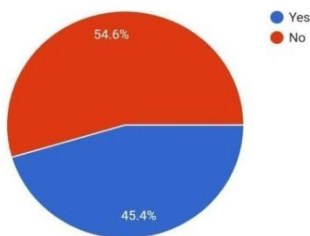


Fig. 6. Pie chart showing ratio of facial hair growth

- Do you have facial hair growth?

Of the 196 people surveyed, 43% (86 people) answered yes, and 43% (85 people) answered no.

- If married, do you have any infertility problems?

14 Girls out of 200 have infertility problems and shows a percentage of 7.4%.

- Do you have dark skin or patches on your body?

Of the 196 people surveyed, 63.8% (125 people) answered yes, and 36.2% (71 people) answered no.

A larger portion of the respondents, over 60%, reported having dark skin or patches on their body.

8. If married, do you have infertility problem?
148 responses

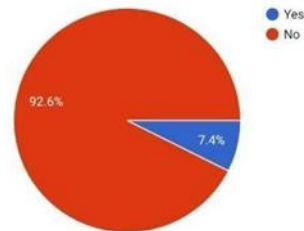


Fig. 7. Pie chart showing problem in infertility

9. Do you have dark skin or patches on your body?
196 responses

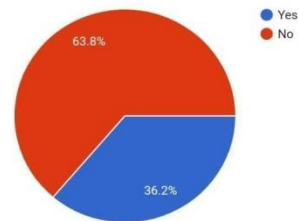


Fig. 8. Pie chart showing presence of dark patches

10. Do you have oily skin?
197 responses

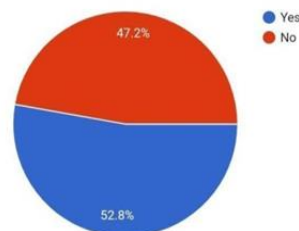


Fig. 9. Pie chart showing ratio of oily skin

- Do you have oily skin?

Of the 197 people surveyed, 47.7% (94 people) answered yes, and 52.3% (103 people) answered no.

Almost half, close to 50%, of the respondents reported having oily skin.

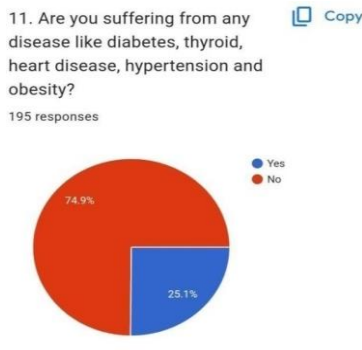


Fig. 10. Pie chart showing suffering of disease

- Are you suffering from any diseases like diabetes, thyroid, heart disease, hypertension and obesity?

A larger portion of the respondents, 74.9% (147 people), answered yes, indicating that they suffer from at least one of the diseases mentioned in the question.

The remaining 25.1% (48 people) answered no.

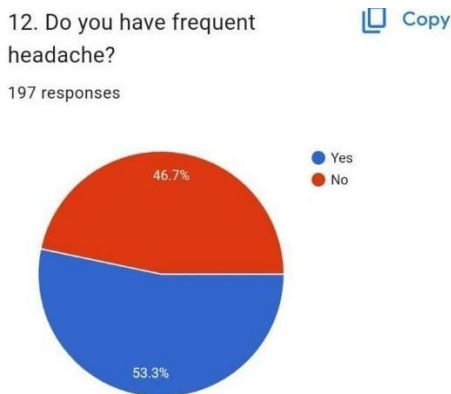


Fig. 11. Pie chart showing headache

- Do you have frequent headaches?

Of the 197 people surveyed, 46.7% (92 people) answered yes, and 53.3% (105 people) answered no.

Slightly less than half, close to 50%, of the respondents reported having frequent headaches.

- Do you often feel emotionally stressed?

Of the 196 people surveyed, 31.1% (61 people) answered yes, and 68.9% (135 people) answered no.

A smaller portion of the respondents, a little over 30%, reported feeling emotionally stressed often.

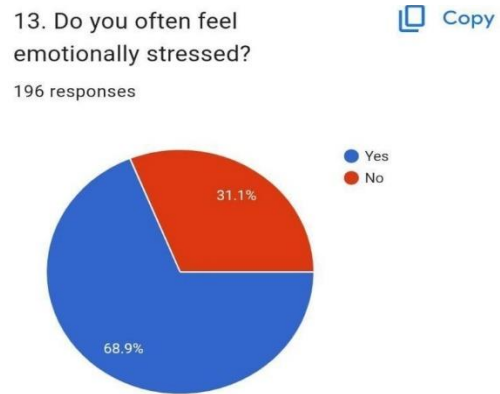


Fig. 12. Pie chart showing emotional stress

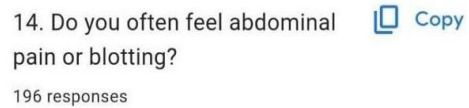


Fig. 13. Pie chart showing abdominal pain

- Do you often feel abdominal pain or bloating?


Of the 196 people surveyed, 63.8% (125 people) answered yes, and 36.2% (71 people) answered no.

A larger portion of the respondents, over 60%, reported often feeling abdominal pain or bloating.

- Do you have any genetic history ofpcod?

Of the 193 people surveyed, 88.6% (171 people) answered yes, and 11.4% (22 people) answered no.

A large majority of the respondents, nearly 90%, reported having a genetic history of PCOD.

16. Do you have a bad sleeping pattern? 
195 responses

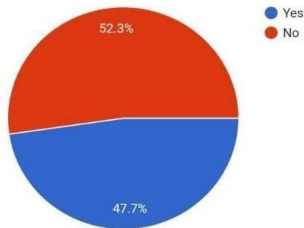



Fig. 14. Pie chart showing bad sleeping

15. Do you have any genetic history of PCOD? 
193 responses

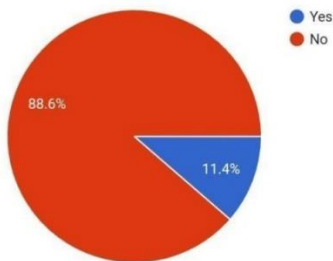


Fig. 15. Pie chart showing genetic history of PCOD

- Do you have a bad sleeping pattern?

Of the 195 people surveyed, 52.3% (102 people) answered yes, and 47.7% (93 people) answered no.

A little over half of the respondents reported having a bad sleeping pattern.

- Do you have irregular periods?

61.4% (121 respondents) said yes, they experience irregular periods.

38.6% (76 respondents) said no, they have regular periods.

- Is there any gap of more than 35 days between your periods?

Out of 197 responses, 69% (136) of the respondents said yes, while 31% (61) said no.

A significant proportion of the respondents (69%) experience menstrual irregularity, defined in the

survey as having a gap of more than 35 days between periods.

17. Do you have irregular periods? 
197 responses

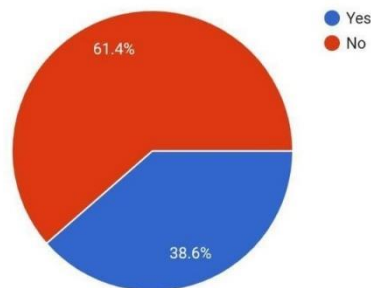



Fig. 16. Pie chart showing periods

18. Is there a gap of more than 35 days between your periods? 
197 responses

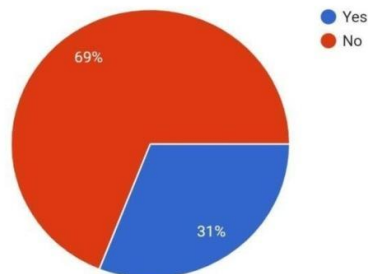



Fig. 17. Pie chart showing period time

19. Are you observing excessive hair growth on your face, breast or back area? 
196 responses

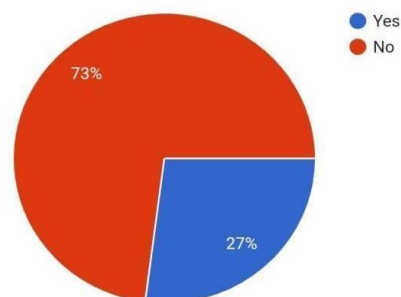


Fig. 18. Pie chart showing exercise

- Are you observing excessive hair growth on your face, breast or back area?

Out of 196 responses, 73% said yes and 27% said no.

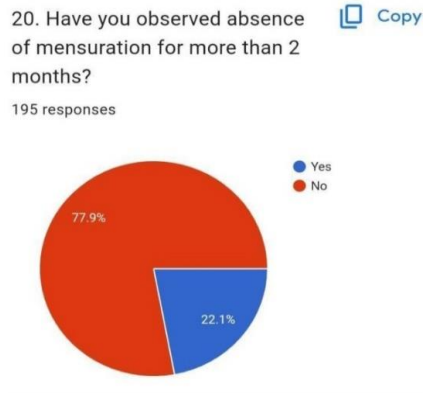


Fig. 19. Pie chart showing mensuration

- Have you observed an absence of menstruation for more than 2 months?

Out of 195 responses, 77.9% (152) said yes, and 22.1% (43) said no.

A large majority of the respondents (77.9%) reported absence of menstruation for more than 2 months.

21. Do you have heavy bleeding problem during your periods?
195 responses

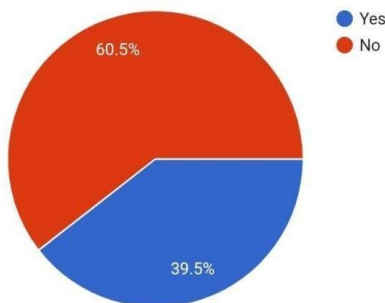


Fig. 20. Pie chart showing bleeding problem

- Do you have heavy bleeding problems during periods?

Out of 195 responses, 60.5% (119) said yes, and 39.5% (76) said no.

A significant proportion of the respondents (60.5%) reported heavy bleeding problems during their periods.

22. If married, do you face difficulty in getting pregnant?
153 responses

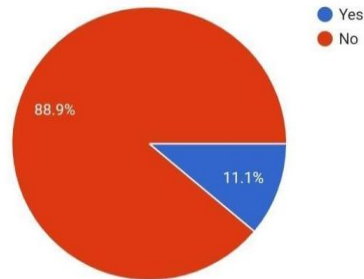


Fig. 21. Pie chart showing pregnancy

- If married, do you face difficulty in getting pregnant?

Out of 153 responses, 88.9% (136) said yes, and 11.1% (17) said no.

A large majority of the married respondents (88.9%) reported facing difficulty getting pregnant according to this survey.

23. Do you have cyst in ovaries?
192 responses

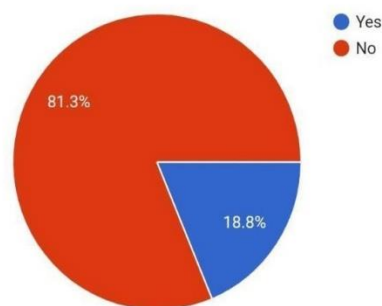


Fig. 22. Pie chart showing cyst


- Do have cysts in their ovaries?

Out of 192 responses, according to the chart, 81.3% (156) said yes, and 18.8% (36) said no.

- Do you often feel fatigued or tired?

Out of 195 responses, 36.4% (71) said yes, and 63.6% (124) said no.

A smaller proportion of the respondents (36.4%) reported often feeling fatigue or tiredness.

24. Do you often feel fatigue or tired? 

195 responses

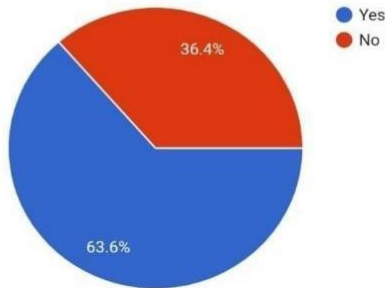



Fig. 23. Pie chart showing fatigueness

25. Do you have sudden mood changes? 

196 responses

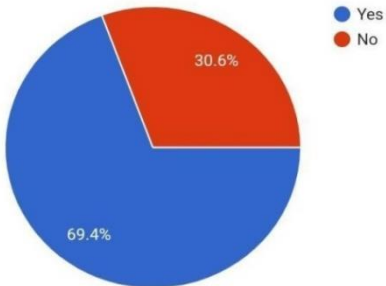


Fig. 24. Pie chart showing mood changing

- Do you have sudden moodchanges?

Out of 196 responses, 30.6% (60) said yes, and 69.4% (136) said no.

A smaller proportion of the respondents (30.6%) reported having sudden mood swings.

- Do you have cravings for sugar and carbs?

Out of 195 responses, 45.1% (88) said yes, and 54.9% (107) said no.

A slight majority of the respondents (54.9%) reported not having cravings for sugar and carbs.

26. Do you have any cravings for sugar or carbs? 

195 responses

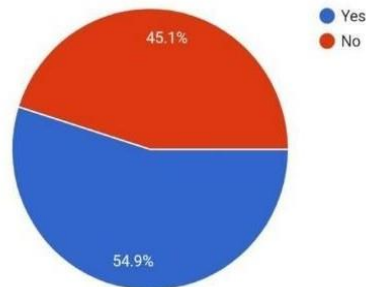



Fig. 25. Pie chart showing cravings of sugar

27. Does your periods last for more than 7 days? 

196 responses

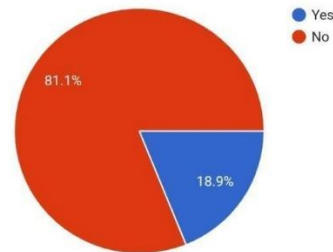


Fig. 26. Pie chart showing period time

- Do your periods last more than 7 days?

81.1% of people responded yes and 18.9% responded no.

28. Do you feel your waistline is larger than normal? 

192 responses

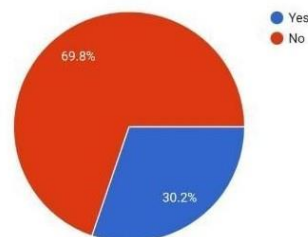



Fig. 27. Pie chart showing waistline

- Do you feel your waistline is larger than normal?

Out of 192 responses, 69.8% of people said yes and 30.2% said no.

29. Do you feel irritated most of the time?  Copy
195 responses

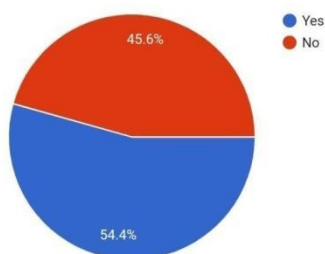



Fig. 28. Pie chart showing irritation

- Do you feel irritated most of the time?

Of the 195 responses, 45.6% said yes and 54.4% said no.

It shows that out of 195 people, 45.6% said they feel irritated most of the time, while 54.4% said they don't.

30. Do you like to have snacks in between meals?  Copy
196 responses

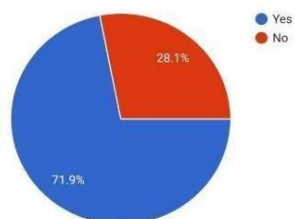


Fig. 29. Pie chart showing to take snacks

- Do you like to have snacks in between meals?

Out of 196 responses, 71.9% of people said yes and 28.1% said no.

People who like to snack between meals: 71.9%

People who don't like to snack between meals: 28.1%.

4. CONCLUSION

Many researchers have found that PCOD findings are increasing with time. Finding insulin

resistance in obese adolescents gave a different diagnosis of PCOD. Upon further clinical testing, many other symptoms are found like Hirsutism, acne, and menstrual abnormalities.

5. LIMITATIONS OF THE STUDY

This study does have some limitations. Menstrual diaries to identify menstrual intervals were not utilized. The patients were not elevated for the presence of biochemical HYPERANDROGENEMIA. Mid-luteal progesterone level was not measured to identify eumenorrheic women, who had subclinical menstrual dysfunction. Since the study was performed on students, the majority of the subjects were unmarried, which precluded a vaginal approach for ultrasonography and as a result, this specific and sensitive tool was not used for identifying polycystic ovaries.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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ANNEXTURE

The Sample Questionnaire

Anthropometric, clinical, and biochemical parameters –

- (1) AGE _____ YRS
- (2) HEIGHT _____ CMS
- (3) WEIGHT _____ KG
- (4) BODY MASS INDEX (BMI) _____ KG/M²
- (5) WAIST CIRCUMFERENCE _____ (CM)
- (6) AGE OF FIRST PERIOD _____
- (7) PELVIC PAIN DURING MENSURATION _____
- (8) MARITAL STATUS _____ IF MARRIED
- (9) FERTILITY PROBLEMS _____
- (10) DIET _____ (LOW CARBS, LOW PROTEIN)
- (11) ACNE _____
- (12) FAMILY HISTORY _____
- (13) OTHER SYSTEMATIC DISORDERS –
DIABETES _____ HYPERTENSION _____ HYPERTHYRODI

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