Scientific Research

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AL-Kindy College of Medicine

The prevalence of poly cystic ovarian syndrome among medical student

A project Submitted to AL-Kindy College of Medicine In partial fulfilment of the requirement of a project module/ 3rd stage

Students (research group)

Asia Adil Mohammed

Ghasaq Nihad Hussain

Sajad Nadhim Musa

Supervised by:

Dr. Asma Taha

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Abstract

Background: Polycystic ovary syndrome (PCOS) is one of the most common causes of infertility in woman, affecting 4-18% of reproductive aged women worldwide. It is characterized by hormonal imbalance leading to reproductive, metabolic and psychological dysfunction. It is a multi-organ syndrome affecting both female gonads and the pituitary gland. Polycystic ovary syndrome is idiopathic in occurrence. However, recent studies suggest that it can be caused by inherent abnormalities of ovarian steroid genesis, follicular development, and excessive gonadotropin - releasing hormone (GnRH) and luteinizing hormone (LH) and reduced follicle stimulating hormone (FSH) secretion.

Aim

To evaluate the prevalence of polycystic ovarian syndrome among medical students.

Method of data collection:

This cross-sectional study was conducted among medical students of university of Baghdad (UOB) Al-kindy collage of medicine (KMC)/ university of Baghdad (UOB) college of medicine and Al-mustansyria University college of medicine and other Medical collages during the academic year 2020_2021.

The data was collected during the period from the (January 21, 2021) to the (February 5, 2021). A convenient sample consisted of out of overall number of students in the Al-kindy college and other medical colleges which are (100) from first stage to final stage.

Result

Out of 100 female medical students suffer from polycystic ovary syndrome from variety of colleges, from 17-28 age group, 42% have family history, 45% have obesity, 18% were married, 92% have irregular menstrual cycle, 8% have hirsutism, 2% have infertility.

43% were taking medication, including 14% were taking diane35, 19% were taking metformin, 37% were using a diet, 34% were doing exercises, , 32% improved after using medication.

Conclusion:

Our study revealed that the PCOS is a well-recognized condition that causes considerable morbidity; there are a lot of female students among the medical colleges we studied while this particular disease is becoming more prevalent disorder among women of reproductive age with lifelong complications.

Acknowledgments

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INTRODUCTION

Polycystic ovarian syndrome (PCOS)

Women with polycystic ovarian syndrome (PCOS) have abnormalities in the metabolism of androgens and estrogen and in the control of androgen production. PCOS can result from abnormal function of the hypothalamic-pituitary-ovarian (HPO) axis. [4]

Women with PCOS who suffer from oligomenorrhea due to anovulation may require treatment. However, the hormonal treatments taken by women to regulate their periods or help hirsutism may be incompatible with getting pregnant (e.g. the combined oral contraceptive pill). The polycystic ovarian syndrome is a heterogeneous collection of signs and symptoms that, gathered together, form a spectrum of a disorder with a mild presentation in some but a severe disturbance of reproductive, endocrine and metabolic function in others. The prevalence of polycystic ovaries seen on ultrasound is around 25% of all women but is not always associated with the full syndrome. There are many extraovarian aspects to the patho-physiology of PCOS, yet ovarian dysfunction is central .[2]The joint ESHRE/ASRM (European Society for Human Reproduction and Embryology/American Society for Reproductive Medicine) consensus defined PCOS as requiring the presence of two out of the following three criteria: [4]

1. oligo- and/or anovulation (that is oligomenorrhea or amenorrhea)
2. hyperandrogenism (clinical features and/or biochemical elevation of testosterone);
3. polycystic ovaries assessed by ultrasound .

Signs and symptoms:

Women with PCOS typically present for medical care with one or more of the following chief complaints :[5]

1. Oligomenorrhea
2. Infertility
3. Excessive weight gain
4. Irregular uterine bleeding
5. Hirsutism
6. Diabetes

Prevalence and Epidemiology: PCOS is a common gynecologic endocrine problem. Ap- proximately 6–8% of women of reproductive age (15–45 years) have PCOS as defined by the NIH criteria. [5]

PATHOGENESIS: The central abnormality in polycystic ovary syndrome is a state of functional ovarian hyperandrogenism with elevated levels of luteinizing hormone, although increased amounts of this hormone are probably a result, rather than a cause, of ovarian dysfunction. Excess ovarian androgens act locally to cause (1) premature follicular atresia, (2) multiple follicular cysts and (3) a persistent anovulatory state. Impaired follicular maturation causes decreased secretion of progesterone. Peripherally, hyperandrogenism produces hirsutism, acne and male-pattern (androgen-dependent) alopecia. Women with polycystic ovary syndrome exhibit marked peripheral insulin resistance, out of proportion to the degree of obesity. The resulting hyperinsulinemia seems to contribute to increased ovarian hypersecretion of androgens and direct stimulation of pituitary luteinizing hormone production. [3] The etiology of PCOS remains a mystery. PCOS is characterized by defects in both the reproductive and metabolic systems. Most women with PCOS have abnormally increased gonadotropin-releasing hormone (GnRH) pulse frequency, suggesting that a hypothalamic neuroendocrine abnormality is a key cause of the syndrome. The cause of the increased GnRH pulse frequency is not known. Increased GnRH pulse frequency results in increased pituitary secretion of luteinizing hormone (LH) which, in turn, stimulates the ovarian theca and stroma to over-secrete androstenedione and testosterone. Increased LH secretion results in increased ovarian androgen production which, in turn, causes hirsutism by stimulating the growth of the pilosebaceous unit in androgen dependent areas such as the face. Increased LH and ovarian androgen secretion causes stunted growth of ovarian follicles, resulting in the accumulation of small follicles, 2–9 mm in diameter. In the absence of the growth of a large follicle (20–25 mm in diameter) the LH surge does not occur and ovulation is not triggered. In the absence of ovulation, the menstrual pattern is oligomenorrhea or amenorrhea. The stunted growth of the ovarian follicles results in the accumulation of many small follicles 2–9 mm in diameter that can be detected by transvaginal ultrasonography. The

ESRHE/ASRM definition of PCOS requires that more than 12 small follicles, 2–9 mm in diameter, be detected in each ovary by sonography . Many women with PCOS also have excessive adrenal secretion of the androgen precursors, androstenedione, and DHEAS. These androgen precursors can be converted to the potent androgens, testosterone and dihydrotestosterone. The metabolic abnormalities of PCOS include :[5]

- Insulin resistance and a compensatory hyperinsulinemia
- The metabolic syndrome characterized by centripetal obesity, increased visceral fat, dyslipidemia, and mild hypertension
- Increased risk for developing diabetes mellitus
- Dyslipidemia
- Elevated serum concentrations of markers of endothelial inflammation, such as C-reactive protein, interleukin-6, interleukin-18, and endothelin-1

Approximately 40% of women with PCOS have the metabolic syndrome, which increases the risk for developing diabetes mellitus and cardiovascular disease. Recently, women with PCOS have also been documented to be at increased risk for sleep apnea and nonalcoholic steatohepatitis .For women with insulin resistance and adequate pancreatic beta-cell function, a glucose load (or other mixed meal) results in a marked increase in insulin secretion and circulating insulin in an attempt to overcome the peripheral resistance to insulin action. Both lean and obese women with PCOS often have insulin resistance. In general, obese women with PCOS have more severe insulin resistance than obese normally-ovulating women or lean women with PCOS. [5]

PATHOGENESIS: The morphology of the polycystic ovary has been redefined as an ovary with 12 or more follicles measuring 2-9 mm in diameter and/or increased ovarian volume (>10 cm^3). There is considerable heterogeneity of symptoms and signs among women with PCOS and for an individual these may change over time. PCOS is familial, and various aspects of the syndrome may be differentially inherited. Polycystic ovaries can exist without clinical signs of the syndrome, which may then become expressed in certain circumstances. There are a number of factors that affect expression of PCOS, for

example a gain in weight is associated with a worsening of symptoms while weight loss may ameliorate the endocrine and metabolic profile and symptomatology.Genetic studies have identified a link between PCOS and disordered insulin metabolism, and indicate that the syndrome may be the presentation of a complex genetic trait disorder. The features of obesity, hyperinsulinaemia and hyperandrogenaemia, which are commonly seen in PCOS, are also known to be factors that confer an increased risk of cardiovascular disease and non-insulin-dependent diabetes mellitus (NIDDM) .There are studies indicating that women with PCOS have an increased risk for these diseases, which pose long-term risks for health, and this evidence has prompted debate as to the need for screening women for PCOS. Polycystic ovaries are commonly detected by ultrasound or other forms of pelvic imaging, with estimates of the prevalence in the general population being in the order of 20–33%. Although the ultrasound criteria for the diagnosis of polycystic ovaries have not, until now, been universally agreed, the characteristic features are accepted as being an increase in the number of follicles and the amount of stroma compared with normal ovaries, resulting in an increase in ovarian volume. The 'cysts' are not cysts in the sense that they do contain oocytes and indeed are follicles whose development has been arrested .The actual number of cysts may be of less relevance than the volume of ovarian stroma or of the ovary itself, which has been shown to closely correlate with serum testosterone concentrations.At the ESHRE/ASRM consensus meeting, a refined definition of the PCOS was agreed, encompassing a description of the morphology of the PCOS. According to the available literature, the criteria fulfilling sufficient specificity and sensitivity to define the PCOS are the presence of 12 or more follicles measuring 2–9mm in diameter and/or increased ovarian volume (>10cm^3).If there is a follicle greater than 10mm in diameter, the scan should be repeated at a time of ovarian quiescence in order to calculate volume and area. The presence of a single PCOS is sufficient to provide the diagnosis. The distribution of the follicles and the description of the stroma are not required in the diagnosis. Increased stromal echogenicity and/or stromal volume are specific to PCO, but it has been shown that the measurement of the ovarian volume (or area) is a good surrogate for the quantification of the stroma in clinical practice. A woman having PCO in the absence of an ovulation disorder or

hyperandrogenism(asymptomatic PCOS) should not be considered as having PCOS, although she may develop symptoms over time ،for example if she gains weight.[2]

On gross examination, both ovaries are enlarged. The surface is smooth, reflecting the absence of ovulation. On cut section, the cortex is thickened and discloses numerous theca lutein type cysts, typically 2 to 8 mm in diameter. These are arranged peripherally around a dense core of stroma or scattered throughout an increased amount of stroma. Microscopically, the following features are present: (1) numerous follicles in early stages of development; (2) follicular atresia; (3) increased stroma, occasionally with luteinized cells (hyperthecosis) and (4) morphologic signs of an absence of ovulation (thick, smooth capsule and absence of corpora lutea and corpora albicantiae). Many subcapsular cysts show thick zones of theca interna in which some cells may be luteinized.[3]

History

Menstrual Dysfunction: Women with PCOS typically have fewer than six menses per year. In most women with PCOS, the menstrual dysfunction begins during the teen years. The differential diagnosis of oligomenorrhea is extensive. Other causes of oligomenorrhea include pregnancy, stress or exercise induced oligomenorrhea (hypothalamic amenorrhea), eating disorders including anorexia or bulimia, abnormally reduced body fat with a normal body mass index (BMI), premature ovarian failure, hyperprolactinemia, and non- classical adrenal hyperplasia.[5]

Physical Examination

Hyperandrogenism

Women with PCOS typically have signs of hyperandrogenism, the most frequent of which are hirsutism and acne. Hirsutism is often quantitatively assessed using the Ferriman Gallwey scoring system. Nine different body areas are graded 0 (no hirsutism) to 4 (marked hirsutism) and the individual score for each body part .Approximately 5% of the female population has a total score greater than or equal to 8.Severe hyperandrogenism can lead to signs of virilization including male pattern

hair loss, severe hirsutism, increased upper body muscle mass, deepening of the voice, and clitoromegaly. [5]

Obesity and insulin resistance

Approximately 50% of women with PCOS have a BMI greater than 30 kg/m2 and/or a waist circumference greater than 88 cm (35 in). Women with severe insulin resistance may have acanthosis nigricans or an increased number of skin tags (achrochordons). Both acanthosis nigricans and skin tags typically occur more frequently in body folds, such as the nape of the neck, the axilla, and the inner thighs. [5]

Laboratory Tests:

- ***Increased Serum Androgens:*** Most women with PCOS have an abnormally increased serum concentration of an androgen such as testosterone, androstenedione, and/or DHEAS. Testosterone is extremely difficult to measure accurately and many clinical assays have been developed to separate male levels of serum testosterone (7 ng/mL) from normal female levels of testosterone (0.4 ng/mL), but are unable to reliably detect the modest increase in serum testosterone observed in most women with PCOS (0.7–0.9 ng/mL). The laboratory measurements of androstenedione and DHEAS are more straightforward and have greater reliability. [5]
- ***Decreased Serum Sex Hormone Binding Globulin:*** In PCOS, increased androgens and insulin resistance result in decreased liver production and serum levels of sex hormone binding globulin (SHBG), resulting in increased free testosterone. [5]
- ***Increased Serum Luteinizing Hormone:*** LH levels are raised in most women with PCOS. However, serum LH is secreted in a pulsatile manner (high peaks and low valleys). The pulsatile nature of LH secretion makes it difficult to measure accurately. In addition, serum LH is influenced by BMI, with higher BMI associated with lower LH levels in both normal ovulatory women and women with PCOS. A single LH measurement should be interpreted in light of the patient's BMI, but nomograms adjusting LH for BMI are not widely available. The LH to FSH ratio may

partially correct for some of these measurement problems. An LH to FSH ratio of ≥2 is suggestive of increased LH secretion, and PCOS. [5]

- ***Dyslipidemia:*** Many women with PCOS have increased LDL–cholesterol (>130 mg/dL) decreased HDL–cholesterol (<50 mg/dL) and increased fasting triglycerides (>150 mg/dL). More than 50 % of women with PCOS have dyslipidemia. [5]
- ***Pelvic Ultrasound Exam:*** Transvaginal ultrasonography is required to observe the multifollicular ovary present in most women with PCOS. [5]
- ***Abnormal Glucose Level:*** In women with PCOS, an oral glucose challenge is more sensitive in detecting abnormal glucose dynamics than a fasting glucose determination. Approximately 3 % of women with PCOS have a fasting glucose level greater than or equal to 126 mg/dL, which defines the cutoff for diagnosing diabetes mellitus. If a 75 gm oral glucose challenge is used, 7.5% of women with PCOS have a 2-hour glucose value greater than 200 mg/dL, which defines the cutoff for diagnosing diabetes mellitus. Using the oral glucose challenge, 35% of women with PCOS have a 2-hour glucose value between 140 and 200 mg/dL, which defines the pre- diabetes syndrome of "impaired glucose tolerance." Many authorities recommend that all women with PCOS have an oral glucose challenge to screen for diabetes mellitus. [5]

Management

Management of PCOS involves the following:

- ✓ Combined oral contraceptive pill (COCP) to regulate menstruation. This also increases sex hormone binding globulin, which will help reduce androgenic symptoms. [1]
- ✓ Cyclical oral progesterone: used to regulate a withdrawal bleed . [1]
- ✓ Clomiphene: this can be used to induce ovulation where subfertility is a factor . [1]
- ✓ Lifestyle advice: dietary modification and exercise is appropriate in these patients as they are at an increased risk of developing diabetes and cardiovascular disease later in life. Aerobic exercise has been shown to improve insulin resistance.

- ✓ Weight reduction . [1]
- ✓ Ovarian drilling, a laparoscopic procedure to destroy some of the ovarian stroma that may prompt ovulatory cycles . [1]
- ✓ Treatment of hirsutism/androgenic symptoms. Hirsutism can be treated by the local use of depilatory aids and electrolysis but the presence of hirsutism, acne and alopecia may also respond to antiandrogens such as cyproterone acetate combined with an oestrogen such as ethinylestradiol given on a cyclical basis. [1]
- ✓ Eflornithine cream (Vaniqua™) applied topically. [1]
- ✓ cyproterone acetate (an antiandrogen contained in the Dianette™ contraceptive pill, sometimes used alone) . [1]
- ✓ Metformin: this is beneficial in a subset of patients with PCOS, those with hyperinsulinaemia and cardiovascular risk factors. It improves parameters of insulin resistance, hyperandrogenaemia, anovulation and acne in PCOS, and may aid weight loss. It is less effective than clomiphene for ovulation induction and does not improve pregnancy outcome. [1]
- ✓ GnRH analogues with low-dose HRT: this regime should be reserved for women intolerant of other therapies. [1]
- ✓ Surgical treatments (e.g. laser or electrolysis). [1]

Complications: Increased risk for endometrial hyperplasia and cancer, diabetes mellitus, and metabolic syndrome.

METHODOLOGY AND DATA COLLECTION

Method -:

This cross-sectional study was conducted among medical students of university of Baghdad (UOB) Al-kindy collage of medicine (KMC)/ university of Baghdad (UOB) college of medicine and Al-mustansyria University college of medicine and other Medical collages during the academic year 2020_2021.

The data was collected during the period from the (January 21, 2021) to the (February 5, 2021). A convenient sample consisted of out of overall number of students in the Al-kindy college and other which are (100) from first stage to final stage.

Data collection:-

An online questionnaire by Google forms was used to collect the data. The questionnaire was filled by the students privately and separately. The response rate was (100). The questionnaire includes(36) questions and some of this questions include:

1. The first four questions about personal data (age ,college, stage ,if she was married or not)
2. If she became pregnant, number of delivery and if miscarriage occurred or not.
3. If she know she suffered from PCOS by symptoms, ultrasound or by hormonal tests.
4. What are the most common symptoms she suffered from it.
5. If she following a certain diet, exercises and if she obeses or not.
6. The name and type of drug, duration of treatment, side effect of it to assess if this drug useful for her or not.
7. The test she done for some hormones as [Testosterone, Follicle stimulating hormone (FSH),Luteinizing hormone ,(LH),Estrogens , Prolactin and other] .

Data analysis:-

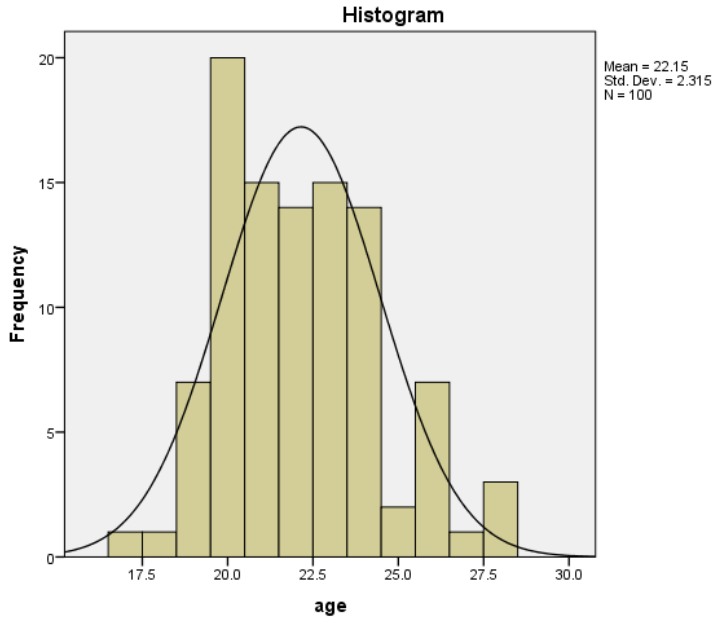
The data is analyzed by using SPSS version 20.we will use excel, SPSS and tables to numbering and make a percentage for description.

RESULT

Results:

In our study group, we found only 20 females have PCOS (20% of the study group) from (Al-Kindy) college of medicine.

Figure 1: **Demographic criteria (Age) of the study group.**



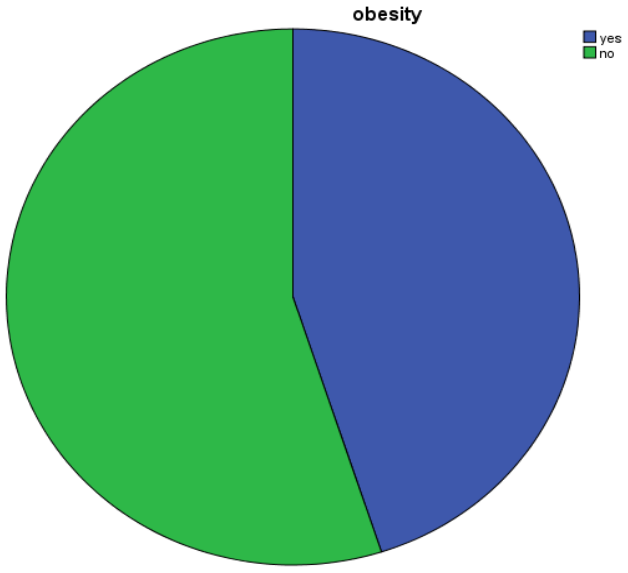
Majority of the respondents were 17-28 years of age. The minimum age recorded among the study participants was 17 years and the maximum age recorded among the study participants was 28 years. (Figure 1)

Table 1 gives the details about some necessary questions.

Table 1: **Distribution of sample according to some important questions including family history, exercises, diet, medication, if she had past surgeries, and how she knew that she had PCOS.**

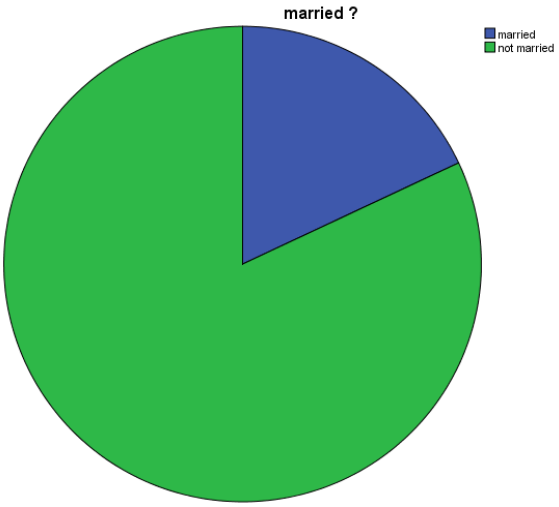
Variable	Answer	Frequency	Percentage
	Total	100	100%
Family history	Yes No	42 58	42% 58%
Diet (for losing weight)	Yes No	37 63	37% 63%
Exercises	Yes No	34 66	34% 66%
Medication	Yes No	43 57	43% 57%
You first knew that you have PCOS by	Symptoms Hormonal tests and ultrasound	72 28	72% 28%
	Total	100	100%

Figure 2: **Demographic criteria (Obesity) of the study group.**



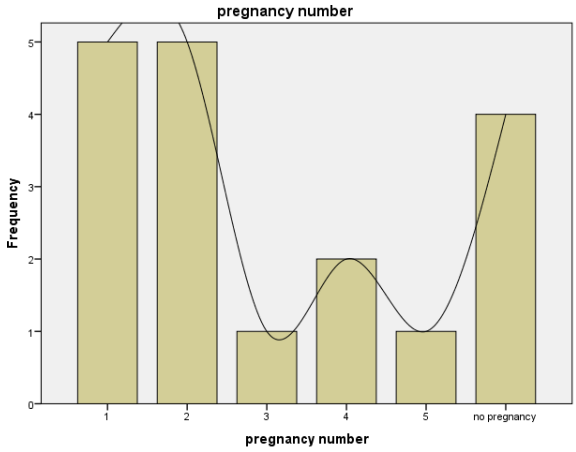
We see in (figure 2) how the obesity is seriously related to the syndrome that the percentage is 45%.

Figure 3: **Demographic criteria (married or not) of the study group.**



We see in (figure 3) if percentage of married one among the study group is 18% .

Figure 4: **Demographic criteria (pregnancy number) of the study group.**



Here are some details (including pregnancy number, abortion number and number of children) about the married students that have polycystic ovarian syndrome in (figure 4, 5, 6).

Figure 5: **Demographic criteria (abortion number) of the study group.**

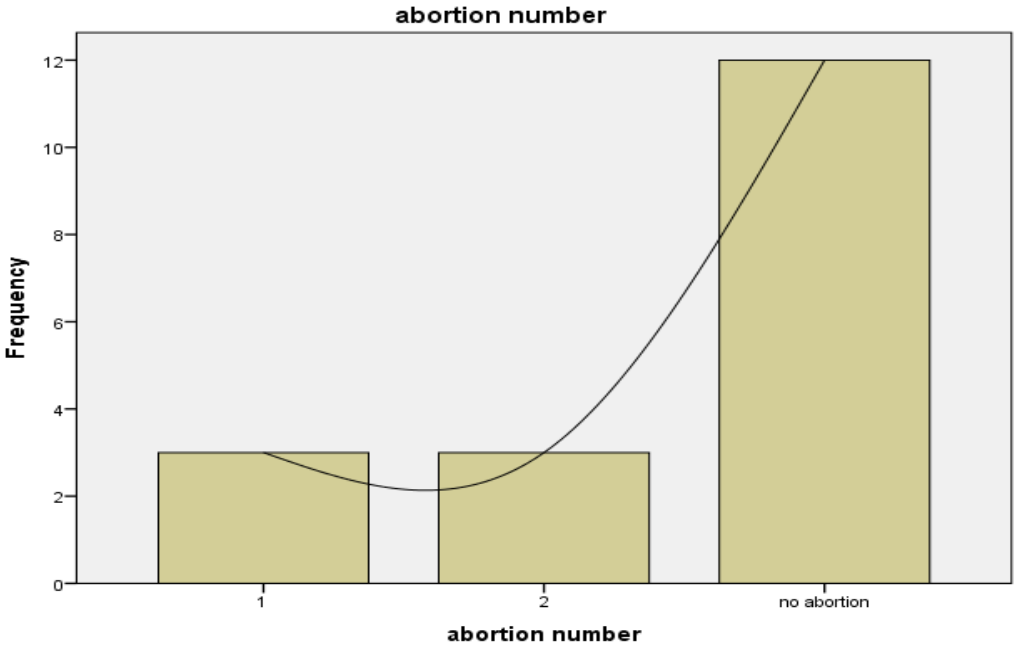


Figure 6: **Demographic criteria (number of children) of the study group.**

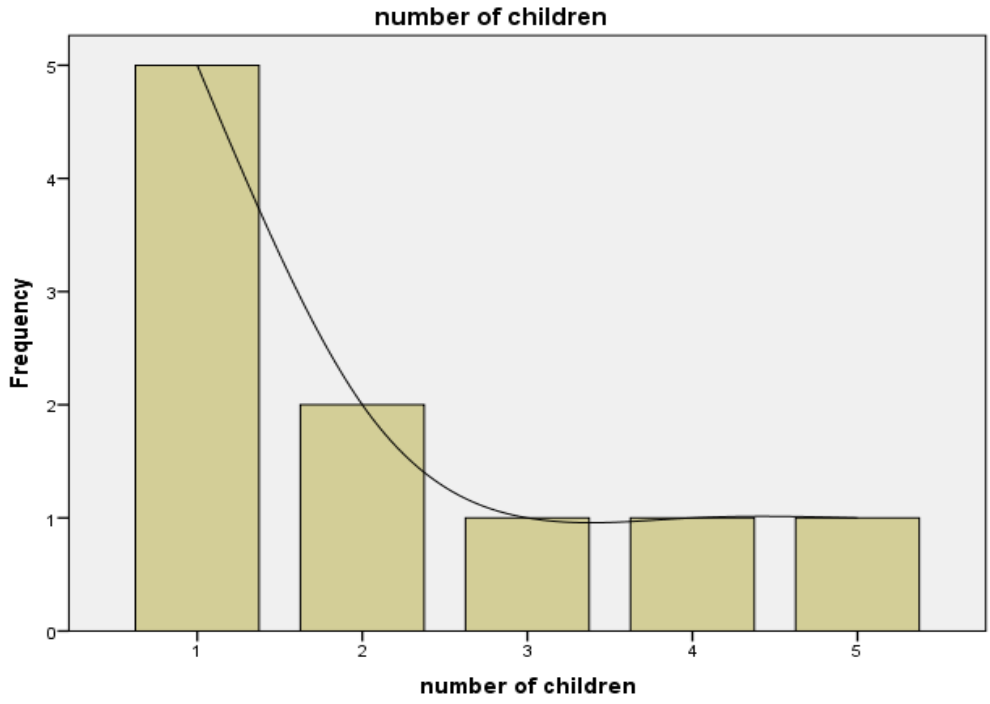


Table 2: **this table shows the symptoms that they have.**

symptoms	**Frequency**	**Percentage**
Irregular menstrual cycle	92	92%
Hirsutism	8	8%
Infertility	2	2%
Obesity	40	40%
Hair loss	8	8%
Tiredness	28	28%
Depression	35	35%
Dark spots on the skin	3	3%
Excessive sweating	3	3%
Headache	20	20%
Eating disorders	8	8%
Difficulty breathing during sleep	7	7%

We have on (tables 2) that menstrual cycle disorders and irregularity, and obesity, are the most common among the study group and more likely to occur than other symptoms.

Table 3: **this table shows the answers of name or type of the medication, duration of the treatment, and if they get better or not using a medication.**

Variable	Answer	Frequency	Percentage
Name or type of the medication	Diane35	9	9%
	Inositol and lactone	1	1%
	Norethisterone	1	1%
	Metformin and choline and contraceptive and vitamins and minerals	1	1%
	Metformin	9	9%
	Spironolactone and Yasmin	1	1%
	Diane35 and metformin	2	2%
	Metformin and progesterone	1	1%
	Metformin and diane35 and folic acid	1	1%
	Metformin and ova plus	1	1%
	Inositol and choline	1	1%
	Clarify and vitamin D	1	1%
	Primolute and diane35 and choline and inositol	1	1%
	clomifene	2	2%
	Wellstra and diane35 and metformin	1	1%
	Diuretic and metformin	1	1%

	Metformin and clomifene	1	1%
Duration of treatment	2 weeks 1 month 2 months 3 months 6 months 1 year 2 years 3 years 5 years 8 years	9 3 3 6 5 2 3 2 1 1	9% 3% 3% 6% 5% 2% 3% 2% 1% 1%
Do they get better using a medication	Yes No	32 29	32% 29%

According to whether they take medication or not (on table 1), there is 43% of the study group who take one particular medication or more.
So we have now (table 3) to show what medication they took, for how long and did they get better using medication.
We see on (table 3) that diane35 (14%), and metformin (19%) are the most common medications that are used.

Table 5: **shows the tests that have been taken among the study group.**

Variable	Answer	Frequency	Percentage
Testosterone	Yes No	61 39	61% 39%
Follicle stimulating hormone (FSH)	Yes No	67 33	67% 33%
Luteinizing hormone (LH)	Yes No	60 40	60% 40%
DHEAS	Yes No	22 78	22% 78%
Androstenedione	Yes No	23 77	23% 77%
Thyroid-stimulating hormone (TSH)	Yes No	47 53	47% 53%
Prolactin	Yes No	43 57	43% 57%
17-hydroxyprogesterone	Yes No	23 77	23% 77%
Lipid panel	Yes No	21 79	21% 79%
Hemoglobin (A1c)	Yes No	29 71	29% 71%

Discussion

Discussion

According to our research, we found that most cases with PCOS are these in 20 years. And we found that PCOS prevalence in Europe steeply increased with age, with the highest rates in women aged 35–39 years and 40–44. (a research by Tomasz Miazgowski, Ira Martopullo, Justyna Widecka, Bartosz Miazgowski and Agnieszka Brodowska in 2016 within Europe). [6]

From our collecting data we found that42% of patients with a positive family history and 58% without it. And we found in other research about 22% of cases showed to have a positive family history, 74% had no family history, and 4% were unaware of their family history regarding the occurrence of PCOS. (a research by Madhumati Chatterjee, Soma Aditya Bandyopadhyay, in 2020 within india). [12]

According to our research, we found that 37% women who follow a diet 37% and 63% who do not follow a diet, 34% of women who do exercise, and 66% do not, and 43% take medication while 57% do not take. In compared to other research we found 30.4% with lifestyle modification and exercise, while 4.3% take medication. (a research by Hamyel Tahir, Amna Hassan, Qudsia Umaira Khan, Farida Hafeez, in 2020, within Pakistan) [7].

In addition, when the woman was asked, "If you suffer from 2 or more of these symptoms, are you going to visit a gynecologist?" 72% said "Yes". And in other research we found, 34.2% said "Yes" (a research by Hamyel Tahir, Amna Hassan, Qudsia Umaira Khan, Farida Hafeez, in 2020, within Pakistan) [7].

According to our research of women who suffer from obesity, about 45% and in another research, we found that the number of obese cases is about 34.1%.(a research by Rong Li, Qiufang Zhang, Dongzi Yang, Shangwei Li, Shulan Lu, Xiaoke Wu, Zhaolian Wei, Xueru Song, Xiuxia Wang, Shuxin Fu, Jinfang Lin, Yimin Zhu, Yong Jiang, Huai L. Feng, Jie Qiao in 2013 within china). [8]

And number of student who are married 18% but in other research are about 41% (a research by Fauzia Tabassum, Chandra Jyoti, Hemali Heidi Sinha, Kavita Dhar, Md Sayeed Akhtar, in 2021, within india) [11]
In our result in figure (4,5,6) we found that, the number of married women who got pregnant once or twice, and thus they have one or two children, and there is a large percentage of women who did not get pregnant and we found small percentage of woman who have had abortion while in other results of univariate analysis (χ^2test) showed that women with PCOS had significantly greater risk of spontaneous abortion than those without PCOS (25 versus 18%, $P < 0.01$) (a research by J X Wang, Michael J Davies, Robert John Norman, in 2001, within Adelaide) [10]

According to our research we found 92% of woman suffering from irregular menstrual cycle. In comparing with other research, we found the number of 37.1% students which endured menorrhagia or amenorrhea.[7] (a research by Hamyel Tahir, Amna Hassan, Qudsia Umaira Khan, Farida Hafeez, in 2020, within Pakistan). and 8% suffering from hirsutism and in other study, 18.51% of participants diagnosed with PCOS had hirsutism. (a research by Rong Li, Qiufang Zhang, Dongzi Yang, Shangwei Li, Shulan Lu, Xiaoke Wu, Zhaolian Wei, Xueru Song, Xiuxia Wang, Shuxin Fu, Jinfang Lin, Yimin Zhu, Yong Jiang, Huai L. Feng, Jie Qiao in 2013 within china) [8]
And 8% suffering from hair loss ,28% from tiredness ,35% from depression , 20% from headache , and 7% from difficulty breathing during sleep. In Comparing with other research we found the number of women suffer from hair loss about42.8% and 62.6% feelings of tiredness ,63.3%have depression,44.2%have headache and dizziness. (a research by Hamyel Tahir, Amna Hassan, Qudsia Umaira Khan, Farida Hafeez, in 2020, within Pakistan) [7] .
In our research we found 2% suffering from infertility, but in compare with other research we found 6.4% of woman have infertility.(a research by Rong Li, Qiufang Zhang, Dongzi Yang, Shangwei Li, Shulan Lu, Xiaoke Wu, Zhaolian Wei, Xueru Song, Xiuxia Wang, Shuxin Fu,

Jinfang Lin, Yimin Zhu, Yong Jiang, Huai L. Feng, Jie Qiao in 2013 within china). [8].

Many women with PCOS have obstructive sleep apnea syndrome (OSAS).individuals with obstructive sleep apnea experience apnea/hypopnea episodes during sleep. For women with PCOS with suspected OSAS, there should be a low threshold for referral for sleep assessment. (a research by Richard Scott Lucidi, in 2019, within United States) [9]

In our research we found 3% of woman suffering from dark spot on the skin, 3% from excessive sweating, and 8% from appetite disorder. However, in comparison with the rest of the research, we did not find a match for these symptoms.

About the medications part of our research, the participants under treatment for polycystic ovary syndrome were using diane-35 (14%) whilst in another research that (39.1%) of the participants are using this particular drug. (a research by Hamyel Tahir, Amna Hassan, Qudsia Umaira Khan, Farida Hafeez, in 2020, within Pakistan). [7]

And we found among our participants that (19%) are using metformin while in other research we had (34.7%) are using this drug (a research by Hamyel Tahir, Amna Hassan, Qudsia Umaira Khan, Farida Hafeez, in 2020, within Pakistan). [7]

The percentage of the contraceptive pills we had are (1%) but we found out the number (39.1%) in another research.(a research by Hamyel Tahir, Amna Hassan, Qudsia Umaira Khan, Farida Hafeez, in 2020, within Pakistan). [7]

In our research among the diagnostic students, there is 9% are taking only diane35, 1% using both inositol and lactone, 1% using norethisterone. 1% using metformin, choline, contraceptive and minerals. 9% are using only metformin. 1% both spironolactone and yasmin. 2% using both diane35 and metformin. 1% using metformin and progesterone. 1% diane35, metformin and folic acid. 1% using metformin and ova plus. 1% using inositol and choline. 1% using clarify and vitamin D for treating the disease. 1% using primolute, diane35, choline and inositol. 2% using only

clomifene. 1% using wellstra, metformin and diane35. 1% using diuretic and metformin. 1% are using bot6h metformin and clomifene.

The durations of the medications that the participants mentioned, generally are 9% two weeks, 3% one month, 3% two months, 6% three months, 5% six months, 2% one year, 3% two years, 2% three years, 1% five years, 1% eight years.

We found out that 32% of the study group improved after using a medication, while 29% did not improve after using medication.

Conclusion and Recommendations

Conclusion:

Our study revealed that The PCOS is a well-recognized condition that causes considerable morbidity, there are a lot of female students among the medical colleges we studied while this particular disease is becoming more prevalent disorder among women of reproductive age with lifelong complications.

Recommendations:

1. Since PCOS is a common hormonal disorder among women of childbearing age in all countries of the world, posing a threat to body systems, including the reproductive system, skin, hair, heart and metabolic problems, which often causes obesity, infertility, and disorders in the body and menstrual cycle.
2. Losing weight, exercise are important. Changing lifestyle can help treat these hormonal changes as well as the complications associated with them.
3. Early diagnosis is important because it allows symptoms to be managed and may prevent the development of health problems in the long term.
4. Metformin is the first-line medication for metabolic manifestations, such as hyperglycemia. Hormonal contraceptives are first-line therapy for irregular menses and dermatologic manifestation.

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