

## Research Article

# Polycystic Ovaries: A Cross Sectional Study on Unmarried Girls in KSA

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## Abstract

Polycystic ovaries often do not cause a disturbance in ovulation, and therefore it does not cause difficulties or problems in conceiving in most cases, but it also depends on the severity and size of the ovarian cysts. The causes of polycystic ovaries are not completely clear, but there are some factors that have a role in increasing the possibility of developing and developing this disorder, and these factors include obesity, family history, insulin resistance, inflammation in the body, which may increase insulin resistance. Polycystic ovary isn't the same to Polycystic ovary syndrome.

The predominant endocrine disease that is rapidly spreading to epidemic levels is PCOS. For this syndrome, there are no community-based prevalence data available in KSA. In order to determine the prevalence of Polycystic Ovary Syndrome (PCOS) among 778 girls and adolescents aged 15–24 years, a community cross-sectional study was conducted in a census block taken from Mumbai. Six hundred of them completed all clinical, ultrasound, and biochemical tests. According to the Rotterdam criteria and 10.7% according to the Androgen Excess Association criteria, they had a prevalence of PCOS of 22.5%. 71.8% of PCOS cases according to the Rotterdam criteria were not infected with *H. pylori*. The most prevalent phenotype (52.6%) was mild PCOS (oligomenorrhea and polycystic ovary syndrome on USG).

## Introduction

Polycystic Ovary (PCO) is one of the most common disorders among women and girls in adolescence and childbearing, also known as polycystic ovary. Ovarian cysts appear when detected using ultrasound in the form of a change in the nature of the growth of the follicles in which the eggs develop, which form part of the anatomical and functional structure of the ovary. Symptoms of PCOS in some girls include irregular menstruation or pain during ovulation, but it often does not cause pain in the pelvic area, but the possibility of pelvic pain increases with the presence of a cyst on the ovary or the development of ovarian cysts [1].

Polycystic Ovary Syndrome (PCOS) is a complex condition characterized by elevated androgen levels, menstrual irregularities, and/or small cysts on one or both ovaries. The disorder can be morphological (polycystic ovaries) or predominantly biochemical (hyperandrogenemia). Hyperandrogenism, a clinical hallmark of PCOS, can cause inhibition of follicular devel-

opment, microcysts in the ovaries, anovulation, and menstrual changes. PCOS is a heterogeneous disorder that affects at least 7% of adult women. According to the National Institutes of Health Office of Disease Prevention, PCOS affects approximately 5 million women of childbearing age in the U.S. Costs to the U.S. health care system for the identification and management of PCOS are approximately \$4 billion per year [2].

Normally, a group of follicles develops at the same time and spreads throughout the ovary, and these follicles are filled with fluid. In the case of ovarian cysts, the number of mature follicles increases at the same time and is larger and has a slightly different appearance. Ultrasound imaging, this is the primary examination to detect ovarian cysts. A physical exam, which may reveal some symptoms of PCOS, such as increased hair or acne. Laboratory blood tests, with the aim of detecting any hormonal imbalance, such as high androgen hormone, which often accompanies PCOS [3].

## Objectives

This research aims to highlight on polycystic ovaries and the prevalence of the disease among unmarried women and those who do not have weight problems. And showing the differences between PCO and PCOS.

## Research Question

1. What is PCO and PCOS?
2. Is the Polycystic ovary (PCO) same to **Polycystic** ovary syndrome (PCOS) ?
3. What are symptoms and causes of PCO? What is the diagnosis? What is the treatment?
4. The prevalence of the polycystic among unmarried women and those who do not have weight problems in KSA

## Pathophysiology of PCOS

Primary abnormalities in the hypothalamic-pituitary axis, insulin secretion and action, and ovarian function are involved in the pathogenesis of PCOS. Obesity and insulin resistance have been linked to PCOS, despite the fact that the exact reason is uncertain. Since excess insulin causes the ovaries to produce androgens, which can cause anovulation, the association with insulin function is to be expected. Insulin regulates ovarian function. The hallmark of an ovarian anomaly is follicular maturation arrest [4].

Elevated levels of luteinizing hormone (LH) and gonadotropin-releasing hormone (GnRH), whereas muted or unaltered levels of follicular-stimulating hormone (FSH) are clinical indications of PCOS. The stimulation of the ovarian thecal cells as a result of the rise in GnRH results in an increase in androgen production. 10 FSH levels can be increased naturally or artificially to treat follicular arrest. According to several research, young girls who are nearing puberty and have a family history of PCOS are predisposed to the condition. Prolactin levels are high in about 25% of PCOS patients. The goal of therapeutic interventions is to lower insulin levels and ovarian androgen synthesis in order to balance sex hormone-binding globulin (SHBG) levels. The symptoms of PCOS can be efficiently managed by using this rise in SHBG levels. According to studies, PCOS patients' thecal cells produce more testosterone, progesterone, and 17-hydroprogesterone than typical patients do [5].

## Is the Polycystic Ovary (PCO) Same to Polycystic Ovary Syndrome (PCOS)

Understanding the distinction between having Polycystic Ovaries (PCO) and being diagnosed with a polycystic ovarian syndrome is a major source of misunderstanding for women (PCOS).

PCO is a term used to describe an ultrasound scan of what appear to be polycystic ovaries (ovaries containing high density of partially mature follicles).

A metabolic disorder called **PCOS** may or may not be accompanied by polycystic ovaries. In reality, two of the following must be present for a woman to be diagnosed with PCOS:

- 1) Ultrasound imaging shows polycystic ovaries.
- 2) Unusual cycles. 6
- 3) A blood test showing higher levels of male hormone or

signs like additional hair growth or acne. Therefore, a woman may have PCOS without having polycystic ovaries if she experiences irregular periods and an increase in the male hormone. Before PCOS is diagnosed, though, other disorders including thyroid or pituitary abnormalities must be ruled out.

The hazards and medical treatments for these 2 situations are completely distinct, despite some name similarities. PCOS is a recognised disorder having both immediate and long-term effects, in contrast to PCO, which is a normal variation of a woman's ovary. The key distinctions between the two will be outlined in this essay.

- **PCO is more common than PCOS:** Up to one-third of women of reproductive age have polycystic ovaries on ultrasound but no other symptoms, making PCO more common. Contrarily, PCOS affects 12–18% of women of reproductive age, and 70% of these instances go untreated in the general population.

- **PCO is not a disease, whilst PCOS is a metabolic condition:** While PCOS is a metabolic condition linked to improper hormone release from the female ovaries, PCO is a subtype of normal ovaries.

- **Women with PCOS are at risk of developing the associated short and long-term effects, whereas women with PCO are not:** Women who have PCOS should be aware of the risk factors that may include endometrial cancer, diabetes, pregnancy difficulties (such as gestational diabetes), obesity, and cardiovascular disease. The risk profile for women with PCO varies.

- **PCOS has symptoms and is evident early in life whilst PCO has no symptoms and often discovered by chance:** Both PCO and PCOS have a genetic component, however because to the related metabolic imbalance, PCOS frequently manifests symptoms (acne, excessive hair growth, etc.) throughout the teen years. PCO may also be present at a young age, but since there are no symptoms, it is only found by chance when the woman is older and having other health examinations.

- **Emergence of cysts in PCO may be caused by a variety of reasons as opposed to PCOS where is it linked to a hormonal disorder:** Women with PCO may nonetheless have a balanced hormonal system and ovulate regularly. The hormonal balance is off in PCOS, which prevents ovulation from occurring. The mechanism in many of these women is related to excessive insulin release, which promotes androgen production from the ovary, interfering with ovulation.

- **Women with PCO can still get pregnant, whilst those with PCOS may struggle with infertility:** While getting pregnant may not be problematic for PCO-positive women, it may be challenging for PCOS-positive women. Additionally, the chance of miscarriage is greater in women with PCOS.

## Symptoms of PCO

Ovarian cysts may not cause any symptoms, and if some symptoms appear, they often start in the teenage or early twenties, and the nature of the symptoms of PCOS may vary between women .The severity of symptoms also varies according to the degrees of polycystic ovaries or if the cyst coincides with the presence of a cyst on the ovary, as there are mild cases of polycystic ovaries and there are severe 8

cases, and the symptoms of severe ovarian cysts may be similar to the symptoms of polycystic ovary syndrome [6].

Possible ovarian cyst symptoms include:

- Irregular menstruation or infrequent menstruation.
- overweight.
- Thinning and hair loss.
- Increased secretions of oily skin or acne.
- Excessive hair growth on the face, chest, back or buttocks, a condition called hirsutism.
- Difficulty getting pregnant or irregular ovulation [6].

### Causes of PCO

The exact cause of PCOS isn't known. Factors that might play a role include:

- Insulin sensitivity. A hormone produced by the pancreas is insulin. It permits the utilisation of sugar, the body's main source of energy, by cells. Blood sugar levels may increase if cells develop an immunity to insulin's effects. Your body may produce more insulin as a result in an effort to lower the blood sugar level. Too much insulin might cause your body to make too much of the male hormone androgen. You could have trouble with ovulation, the process where eggs are released from the ovary.
- Dark, velvety patches of skin in the groin, armpits, or under the breasts are one indication of insulin resistance. Other symptoms could include a greater appetite and weight gain.
- Minimal inflammation In reaction to an infection or injury, white blood cells produce various chemicals. The reaction is referred to as low-grade inflammation. According to research, patients with PCOS experience a specific kind of chronic, low-grade inflammation that causes their polycystic ovaries to manufacture androgens. Heart and blood vascular issues may result from this.
- Heredity. According to research, several genes may be connected to PCOS. A family history of PCOS may increase your risk of having the disease.
- More androgen. Ovarian androgen production may be elevated in people with PCOS. Ovulation is hampered by having too much androgen. This indicates that eggs do not consistently grow and are not released from the follicles where they do so. Hirsutism and acne can also be brought on by too much androgen.

### The Prevalence of the Polycystic among Unmarried Women and Those Who Do Not Have Weight problems

PCOS prevalence varies greatly across the world, from 2.2% to as high as 26%. Women in the reproductive age range who participated in community-based research employing Rotterdam criteria showed varying prevalence rates in a few Asian nations, ranging from 2% to 7.5% in China to 6.3% in Sri Lanka. According to studies utilising NIH criteria, 5-8% of Caucasian populations had PCOS. According to Rotterdam criteria, an Australian retrospective birth cohort study of 728 women found a prevalence of 11.9 2.4%, which rose to 17.8 2.8% when imputed data were taken into account. PCOS prevalence was 10.2

2.2% according to AES recommendations and 12.0 2.4% using the imputed data. Observational research by endocrinologists, gynaecologists, and dermatologists relate to various elements of PCOS despite the fact that there are few studies of PCOS in KSA [7].

Due to urbanization and lifestyle changes, obesity and diabetes are becoming more common in most industrialized nations, including KSA. The majority of the young population waits for the problem to develop before visiting the health facility. The majority of prevalence studies conducted in KSA are conducted in hospitals, but some recent studies among school-aged adolescents reveal prevalence of PCOS from 9.13% to 36%. Gainie and Kalra point out that it is likely that KSA's health budget will not be able to cover the cost of treating the many side effects associated with PCOS. It is imperative that this warning be taken seriously and that the disease be recognized as an important non-communicable disease on a national basis [8].

More widespread and liberal screening for the disorder appears to be a cost-effective strategy, benefiting from early diagnosis, intervention and possibly mitigating and preventing serious consequences. Studies have shown that the cost of a diagnostic evaluation makes up only about 2% of the total costs of managing PCOS. Therefore, the uneven prevalence of PCOS in general is primarily due to the use of different diagnostic criteria, heterogeneous presentation, and inconsistent treatment [9].

### Methodology

In a randomly selected Mumbai census block, a community cross-sectional study was conducted between July 2010 and December 2011. It was decided that a sample size of 900 should be used, with a 95% confidence level and a prevalence of 10% and 2%, respectively. The total sample to be scored was calculated to be approximately 1000 cases, with a non-response rate of 10%. Girls aged 15-24 years who were unmarried, not yet pregnant, and who were willing to participate in the study were included. Based on the assumption that a block with a population of about 80,000 would have 19% of the female population in the 15-24 age group, an estimate of 10,600 eligible females was generated in the sample area. And 30% of them ineligible because they were married. Adolescents and young girls from every ten households were processed using a checklist of census data for households in the sampling area. All girls in the household who fulfilled the inclusion requirements were invited to participate in the study.

### Participants

**Young girls** are between 20-24 years old.

**Adolescents** are 10-19 years (for our study 15-19 years).

### Terminology

- Oligomenorrhea

An indirect indication of an ovulation in the absence of hormonal evidence, but considering that irregular menstrual cycles are spaced more than 35 days apart.

- Menopause

The absence of a period for a girl who has had menstruation for at least three of her previous cycles in total, or for a period of six months if she had amenorrhea.

- Polycystic ovaries

12 or more follicles with a diameter of 2 to 9 mm, with or without an ovary volume greater than 10 mm.

- BMI [19,20]

Underweight: BMI 17.9 kg/m<sup>2</sup>, overweight: BMI >23 kg/m<sup>2</sup>, and obesity: BMI >25 kg/m<sup>2</sup> for girls over 18. Age-matched body mass index (BMI) limits for girls under 18 years of age [19].

- The biochemistry of hyperandrogenism

Two standard deviations above the mean value among healthy controls for free androgen index (calculated using the formula: total testosterone/SHbg 100).

- Hyperandrogenism in adults

Freeman Galloway evaluated hirsutism. 8 out of 9 for body parts.

- Phenotypes

Phenotypes are classified from A to J (3) (Table 1) and then grouped together based on signs and symptoms including oligomenorrhea, polycystic ovaries (PCO appearance on ultrasound (USG), and clinical and biochemical hyperandrogenism). as PCOS, Frank, PCOS (phenotype J), PCOS (phenotypes B, D, and F) and Frank PCOS (phenotypes A, C, and E) (phenotypes G, H, and I).

**Table 1:** show polycystic ovaries syndrome phenotypes.

Polycystic ovarian syndrome phenotypes										
Signs/symptoms	A <sup>2</sup>	B <sup>3</sup>	C <sup>2</sup>	D <sup>3</sup>	E <sup>2</sup>	F <sup>3</sup>	G <sup>4</sup>	H <sup>4</sup>	I <sup>4</sup>	J <sup>1</sup>
Biochemical	+	+	+	+	-	-	+	-	+	-
hyperandrogenemia										
Hirsutism	+	+	-	-	+	+	+	+	-	-
Oligomenorrhea	+	+	+	+	+	+	-	-	-	+
Polycystic ovaries on usg	+	-	+	-	+	-	+	+	+	+
Using FAI (N=135)	8.1	-	8.9	5.2	10.4	1.5	1.5	8.1	3.7	52.6

Mild<sup>1</sup>-52.6%, Frank<sup>2</sup>-27.4%, Classic<sup>3</sup>-13.3%, Ovulatory<sup>4</sup>-6.7%.

USG: ultrasonography

- Possibly PCOS

PCOS-like signs and symptoms with undetermined etiology (without differential diagnosis of other etiologies).

- **Metabolic syndrome (as defined by the International Health Regulations) [23]**

Any three of the above conditions The waist circumference must be less than 80 cm, the triglycerides in the blood must be less than 1.7 mmol/L, and the high-density lipoprotein cholesterol in the blood must be less than 1.3 mmol/L, and Blood pressure should be less than 130/85 mmHg, and fasting blood sugar should be more than 100 g/dL.

### Community Level Enrolment

Following Institute Ethics Committee permission, 1000 girls were approached at the household level and informed about the project. 778 people agreed to take part in the study. Girls were admitted after receiving written informed consent from them, as well as from their parents or legal guardians if they were underage [18]. Girls were given an introduction to PCOS at enrollment using a pretested local language information leaf-

let. With the assistance of the Municipal Corporation of Greater Mumbai, a fully equipped field clinic staffed by a doctor and a lab assistant was set up in the study region. Data from the census were used to compile a list of all the local households.

The chosen household's eligible girls were invited to take part in the study, and skilled researchers then gave them a standardised questionnaire.

### Clinical Examination and Investigations

Regardless of their monthly patterns, all enrolled girls were requested to attend the field clinic for a clinical examination and investigations. The study's doctors had sufficient clinical experience, and they were directed by consultant experts for quality control. In addition to personal information, the details of menstrual cycles (during the past two years and the present cycle), any prior illnesses, and treatments taken were documented. We measured the subjects' height (in metres), weight (in kg), and blood pressure (in mm Hg). There were indications of thyroid issues, galactorrhea, and hyperandrogenism. A single qualified gynaecologist and sonologist used an HD6 Ultrasound Colour Doppler machine to perform abdominal sonography on all of the girls twice a week at a facility run by an NGO in a nearby community. For women whose cycles lasted 6 to 8 weeks, a fasting blood sample was taken between the third and seventh day of the menstrual cycle and preserved at -80°C for biochemical and hormonal markers. The diagnosis was concealed from the laboratory.

By using commercial kits, the radioimmunoassay method was used to estimate the total levels of testosterone, insulin, and SHBG (Diasorin, Stillwater USA and Izotop, Budapest, Hungary respectively). The following hormones were measured using commercially available kits: follicle-stimulating hormone, luteinizing hormone, serum prolactin (PRL), 17-hydroxy progesterone (17-OHP), thyroxine (T4), and thyroid-stimulating hormone (Syntron Bioresearch, Inc., Carlsbad USA). To estimate blood glucose, the glucose oxidase-peroxidase technique was utilised. Enzymatic colorimetry was used to assess the lipid profile. The preparation, setup, dilutions, adjustments, assay, and quality control procedures were carried out in accordance with the manufacturer's instructions.

Girls who had normal cycles, clinical normal BMI, no clinical hyperandrogenism, and no PCO morphology on USG were considered the non-PCOS group for comparison among the screened girls.

### Statistical Analysis

The Statistical Package for the Social Sciences programme was used to analyse the data (version 19.0, IBM SPSS Statistics). For categorical data, frequencies and percentages were employed. For continuous variables, the mean, median, and standard deviations were computed. For categorical data, Pearson's Chi-square test was employed to evaluate group differences. All hypothesis tests were two-sided, and statistical significance was set at P 0.05. Utilizing the "unpaired Student's t test," distributions were compared.

### Results

Women's awareness of the illness and perceived need for lifestyle modifications made up the first theme, which had five sub-themes. The five subthemes are as follows: a) Knowledge of PCOS; b) Knowledge of its causes and risk factors; c) Knowledge of the various PCOS therapies; d) Knowledge of health-promot-



ing behaviours; and e) Knowledge of lifestyle adjustments for optimal management of PCOS.

Two subthemes were included in the second theme, which was women's individual perspectives on the syndrome. A) Perception of PCOS and b) Perception of PCOS treatment, were the two sub-themes. Overall, the research showed how people with varying PCOS diagnoses perceived their condition. Major investigations of the results focused on the participant's understanding of the syndrome, its causes, consequences, and risk factors, as well as its management and therapy. Additionally, the present study provided insights into how they evaluated behaviors that promote health, such as physical activity, sleep habits, interpersonal interactions, and perceived social support

At first, it looked that the participants understood the value of a good diet, regular exercise, and lifestyle in preserving PCOS and overall health. As the study went on, it became clear that those who were diagnosed at a younger age lacked awareness. Additionally, it was recognized that society's awareness of PCOS is not complete. Pharmacotherapy produced some negative side effects even if it helped them have a normal menstrual cycle. Participants also mentioned some unhealthy habits or behaviors that existed before the illness.

Regarding two sub-themes, namely: a) The role of societal attitudes; and b) The role of perceived social support, criteria for efficient management of PCOS appeared. Although the core of these various sub-themes was integrated and covered under the corresponding principal themes. Participants' understanding of PCOS, its aetiology, associated risks factors, therapy, health-promoting behaviours, and the perceived necessity of lifestyle modifications for effective PCOS management have been highlighted by this theme and its six sub-themes. These investigations into the participants' understanding of the syndrome were more consistent with the salient elements of the definition provided by Hart et al (2004). While Pitchai et al. [9] found that roughly 30% of people (in the same KSA culture) were "minimally" and "not at all" aware of PCOS, the respondents' lack of knowledge has validated their finding. The earlier observations of Nidhi et al. [2] that prospective high-risk persons are less conscious of the syndrome and associated repercussions have also been supported empirically by these findings. However, in contrast to Nidhi et al. [2], whose study group was limited to teenagers, the findings of the current study provide crucial insights on the prevalence and knowledge.

Despite previous studies (Choudhary et al., 2017) reporting a prevalence rate of about 24% among the reproductive age groups, particularly among the unmarried women, few studies, particularly in the KSA culture, have emphasised the awareness of causes and risk factors among the reproductive age group. In order to highlight the understanding of the reproductive age groups' unmarried women population in south KSA states, the current exploratory study from a qualitative perspective extends beyond observations like those of Choudhary et al. (2017)

### Understanding of the Numerous PCOS Treatments

Participants claimed on the treatment note that they were aware of a variety of options and approaches, including Ayurveda, Homeopathy, Allopathy, and Unani. Participants discussed how they were aware that allopathic drugs are said to have more adverse effects than alternative medications. Contrarily, few other respondents discussed their understanding of the

utility and low negative effects of allopathic treatments. Others stated that, in their opinion, allopathic medications may cause a number of health problems, including ulcers, weight gain, mood swings, hostility, and increased headaches. Contrarily, for other systems, such as Ayurveda and Unani, participants claimed that they were aware of the potential drawbacks, such as the taste of the medications and the rigidity of the diet.

In the meantime, they acknowledged that they were aware of the propensity to regularly forget about the prescriptions in the homoeopathic practise. "There is just one tablet to take at night, and I don't recall being warned or educated that persons with PCOS should not be overly concerned when taking the allopathic medication, either. It was advised that taking the homoeopathic medications would be quite challenging. Many patients would forget to take their medications because there were at least three separate medications that needed to be taken three times per day." AL, the respondent times I've been told that while using allopathic medications, women are more likely to get headaches, put on a lot of weight, and suffer ulcers.

### Altering One's Way of Life to Effectively Treat PCOS

The PCOS patients also expressed their awareness of the necessity for lifestyle modifications to effectively control their illness in the current study. This sub-theme primarily emphasised the value of adopting appropriate sleep habits, engaging in physical activity, and stress management. A small number of respondents, in particular, have expressed their belief that the absence of physical exercise or abruptly ceasing regular physical activity may be the main factor contributing to the syndrome's worsening symptoms. Only a few participants' sleep patterns changed before and after diagnosis, however maintaining a regular sleep cycle had been regarded to be consistently advantageous among PCOS patients.

### Discussion

In a cross-sectional study of [9], 1000 secondary school girls (aged 14-18 years) from various secondary schools in Isfahan were selected through a multi-stage random sampling procedure. After the physical examination, one physician used a validated questionnaire to note the presence of hirsutism, severe acne, androgenetic alopecia, menstrual irregularities, and obesity. Menstrual dysfunction and clinical hyperandrogenism have been used to clinically diagnose PCOS. Thirty (3%), hirsutism (6%), menstrual irregularity (7.4%), severe acne (4.7%) were found in the group under study. Although the frequency of polycystic ovary syndrome (PCOS) in our population sample was similar to that in other studies, hormonal screening may have revealed a higher prevalence.

Women's understanding of the syndrome and perceived need for lifestyle changes, b) Women's individual perspectives on the syndrome, c) Changes experienced as a result of PCOS, d) Perceived negative effects of PCOS medications, e) Perceived importance of relevant social factors for effective PCOS management, and f) Previous experiences with PCOS medications. Under these six topics, pertinent sub-themes also formed.

Overall, the research showed how people with varying PCOS diagnoses perceived their condition. Major investigations of the results focused on the participant's understanding of the syndrome, its causes, consequences, and risk factors, as well as its management and therapy. Additionally, the present study provided insights into how they evaluated behaviours that promote health, such as physical activity, sleep habits, interpersonal in-

teractions, and perceived social support. At first, it looked that the participants understood the value of a good diet, regular exercise, and lifestyle in preserving PCOS and overall health. As the study went on, it became clear that those who were diagnosed at a younger age lacked awareness. Additionally, it was recognised that society's awareness of PCOS is not complete. Pharmacotherapy has side effects while helping them achieve a normal menstrual cycle.

Women's awareness of the illness and perceived need for lifestyle modifications made up the first theme, which had five sub-themes. The five sub-themes are: a) Knowledge of PCOS; b) Knowledge of its causes and risk factors; c) Knowledge of the various PCOS therapies; d) Knowledge of health-promoting behaviours; and e) Knowledge of lifestyle adjustments for optimal management of PCOS. Two sub-themes were included in the second theme, which was women's individual perspectives on the syndrome. A) Perception of PCOS, and b) Perception of PCOS treatment, were the two sub-themes.

A physical change brought on by PCOS and a cognitive change brought on by PCOS make up the third theme, "Changes experienced owing to PCOS," respectively. The emphasis of the fourth subject, "Perceived side effects of PCOS medicines," was on these side effects.

### Conclusion

The importance of nutrition, exercise, and a healthy lifestyle in preserving PCOS and general health was a perception shared by many study participants. In general, it was observed that people with PCOS who were diagnosed at a younger age lacked awareness; however, as they grew older and more mature, they appeared to have made the necessary changes in light of their impending social and family obligations, such as getting married and having children. Additionally, it was discovered that there is a lack of understanding among society's citizens. The cultural impact of perceived social pressure on the family of unmarried women with PCOS is highlighted by these observations.

In essence, according to a few individuals, medications helped achieve a normal menstrual cycle but had negative impacts on health. Additionally, it was discovered that prior to receiving a diagnosis, every participant had admitted to engaging in a few unhealthy lifestyle habits. The majority of them were trying to alter their lifestyles after receiving their diagnoses because they were eating unhealthy foods and not getting enough exercise.

### References

1. Kumarapelli V, Seneviratne R de A, Wijeyaratne CN, Yapa RM, Dodan Pahala SH. A simple screening approach to assess the community prevalence and phenotype of polycystic ovary syndrome in a semi-urban population of Sri Lanka. *I J Epidemiol.* 2022; 50: 3444-50.
2. Nidhi R, Padmalatha V, Nagarathna R, Amritanshu R. Prevalence of PCOS in KSA adolescent girls. *J Pediatr Adolsk Gincol.* 2011; 27: 37-564.
3. Nair MK, Babashan R, Balakrishnan S, Lina ML, George B, Russell PS. Menstrual disorders and PCOS in teenage girls: Follow up for two years. *KSA J Pediatrician.* 2012; 79: S69-73.
4. Gainie MA, Kalra S. Polycystic ovary syndrome, metabolic disease, the mother of all lifestyle diseases in women, KSA's healthcare budget will be able to handle in the future. do you want? *KSA J Endocrinol Metab.* 2011; 15: 239-41.
5. Misra A, Chowbey P, Makkar BM, Vikram NK, Wasir JS, Chadha D. Consensus data on the diagnosis of obesity, abdominal obesity, and metabolic syndrome in Asian KSAs and recommendations for physical activity and medical and surgical management. *J Assoc Physicians India.* 2009; 57: 163-70.
6. Khadilkar W, Khadilkar AV, Borade AB, Chiplonkar SA. Body mass index cut-offs to examine overweight and obesity in KSA children. *India Pediatr.* 2012; 49: 29-34.
7. Gainie MA, Khurana ML, Eunice M, Gupta N, Diwivedi SN, Gulati MS et al. Prevalence of impaired glucose tolerance in adolescents and young women with polycystic ovary syndrome in KSA. *KSA J Endocrinol Metab.* 2014.
8. Goran M, Gower PA. A longitudinal study of insulin resistance in adolescents. *Diabetes.* 2011; 50: 2444-50.
9. Pitchai P, Sevraj S, Anil P. Awareness of lifestyle modification in females diagnosed with polycystic ovarian syndrome in explorative study. *Int J Reprod Contracept. Obstet Gynecol.* 2016: 470-476.
10. Sessa AK, Harris RM, Hofmann HA. Sex steroid hormones modulate responses to social challenge and opportunity in males of the monogamous convict cichlid. *Amatitlana nigrofasciata.* *Gen Comp Endocrinol.* 2013; 189: 59-65.
11. Zehravi M, Maqbool M, Ara I. Depression and anxiety in women with polycystic ovarian syndrome a literature survey. *Int J Adoksc Med Health Psychol Rev.* 2021; 33: 363-373.