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Research Paper

Physiological, Psychological and Emotional Impact of PCOD in Women

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Abstract

Polycystic Ovary Disease (PCOD) is an endocrine disorder that affects women of reproductive ages, affecting their reproductive as well as overall health. Symptoms of PCOD range from physiological to psychological and emotional effects. Some of the major physiological symptoms are thinning hair on the scalp, irregular menstrual cycle, severe pain and cramps, weight fluctuations, darkened skin patches, acne, hirsutism, cysts, insulin resistance and fertility issues. Whereas, common psychological and emotional symptoms are mood swings, anxiety, decreased body confidence, depression, sleep-related issues, stress related to fertility and effect on relationships with people.

In this study, we aimed to study the impact of PCOD in women and their lives by studying the patterns associated with the symptoms of PCOD. We collected, compiled, organized and analyzed the data about physiological, psychological and emotional symptoms in 50 women. Along with that we gathered data regarding the measures taken by them to manage the symptoms. We used descriptive and inferential statistical methods to study the data.

Thinning hair on the scalp and irregular menstrual cycle were the most commonly reported physiological symptoms, whereas mood swings was the most common psychological and emotional symptom. The variation in severity patterns for certain symptoms (cysts, irregular menstrual cycle, acne and mood swings) were also studied. Moreover, the age of onset of symptoms and the age of diagnosis were studied and compared. The most prevalent lifestyle change adapted by these participants to address physiological symptoms was found to be exercise/physical activity. In contrast, most women preferred to manage the psychological and emotional symptoms by themselves, without taking any professional or other help.

This study helps us understand the effect of PCOD in women's health and how it affects their quality of life. It also helps us highlight the disparity between addressing the physiological symptoms verses the psychological and emotional symptoms of the disease. It emphasizes the need to treat this complex disorder more holistically and address the multiple factors involved in the clinical management of the disease.

Keywords:- *Polycystic Ovary Disease, reproductive ages and women's health.*

Introduction

PCOD stands for Polycystic Ovary Disease which is a metabolic and hormonal condition in women of reproductive ages. The term is often used interchangeably with PCOS (Poly Cystic Ovary Syndrome) by many people in India and is sometimes considered to be a milder form of it. Medically, PCOD is mostly restricted to the ovaries and has relatively milder hormonal imbalances. Whereas PCOS is a more advanced condition and is considered to be a hormonal and metabolic disorder. This condition affects the ovaries and leads to hormonal imbalances, subsequently leading to problems in menstruation and fertility. The ovaries may produce a large number of tiny follicles with immature or partially-mature eggs, failing to ovulate on a regular basis. These follicles are called "cysts". The ovaries may also get swollen or enlarged. Ovaries also start producing androgens in excess, leading to symptoms such as male pattern baldness, abdominal weight gain, irregular menstruation cycles, and in some severe cases, even infertility. If left untreated, PCOD can cause more serious problems like heart disease and diabetes. (Mayo Clinic. 2021, February 23)

Causes and Symptoms

The exact causes of PCOD haven't been agreed upon, but certain factors contribute to its development : genetic makeup, insulin resistance, obesity, high levels of inflammation, excess insulin and excess androgen. (Pace Hospital, 2021, August 12). As the small sacs, filled with fluid, form in the ovaries they contain an immature egg. This fails to trigger ovulation which causes a hormonal imbalance in the body of the patient, with a high release of male hormones.

There are certain common symptoms of PCOS :

1) Irregular menstruation
2) Heavy bleeding
3) Acne
4) Hair Growth (hirsutism)
5) Weight gain
6) Crown Baldness
7) Headaches
8) Darkening of skin
9) Increased levels of androgens

PCOD can also cause certain complications like infertility, diabetes, heart disease, endometrial cancer and depression. (Cleveland Clinic, 2021). It is usually diagnosed with the help of ultrasound which looks at the size of the ovaries, and it is checked if there are any cysts present. Along with that, blood tests are performed testing levels of androgens and other hormones. There is no particular cure for it yet, however, it can be managed with

the right treatment and lifestyle changes. Common medications include birth control pills, hormonal medicine and in some instances diabetes medicines to reduce insulin resistance. The changes in lifestyle are equally important, including changes in diet, and regular exercise.

The symptoms are not only physiological, but also psychological and emotional. The disorder takes a toll on the mental health of a large proportion of women dealing with PCOD. While the management of physiological symptoms is done well, in most cases the psychological aspects are neglected or even dismissed.

Objectives of this study :

1. To study the physiological, psychological and emotional impact of PCOD in women of various age groups.
2. To analyse the frequency of common symptoms of PCOD in women.
3. To study the severity patterns of certain general symptoms.
4. To study the difference between management of physiological symptoms vs psychological & emotional symptoms.

Significance of the study

This study will scientifically explain the physiological, psychological and emotional issues that women with PCOD face on a regular basis and how it impacts these aspects of their health and lives.
The study was conducted in women of various ages (between 15 to 35) in Nagpur, Maharashtra. This project and survey was conducted between February 2023 to April 2023 under the curriculum of Institute of Science, Nagpur, Maharashtra, India. It was done through a systematic survey of 50 women and the data was statistically analyzed to understand the overall impact of PCOD in their day-to-day lives. It helps us understand patterns across symptoms and highlights the importance of focusing on psychological and emotional issues while treating PCOD, as it is often overlooked.

Methodology

The study of the physiological, psychological and emotional impact of PCOD in women was carried out by a combination of various methods. The methods of this study were approved by the Institute of Science, Nagpur. Overall, we used both qualitative and quantitative methods for this research.

Firstly, a review of existing literature was carried out in the field. Relevant research papers and articles were studies that could be found on websites such as Shodhganga, Pubmed,

NCBI, etc. The papers were studied and analysed carefully and information was gathered related to PCOS/PCOD and its overall impact on women's lives.

Qualitative methods

The first course of action was to take a semi-constructive interview of a licensed gynaecologist. Approval was taken from the Lata Mangeshkar Hospital, Nagpur and an interview was conducted with their gynaecologist to understand the disease patterns and the symptoms most commonly observed among patients, in their experience. This interview, along with the literature review, helped us construct the questionnaire for our survey. According to the gynaecologist, the most common age where patients got diagnosed were in their teenage years. She mentioned an observed decline in the average age of onset of symptoms in patients. Although this was an observation, we included this factor in our research. She also mentioned that birth control pills or medicines for progesterone, clomifene, etc. were the most common first approaches to treatment. The most common symptoms observed in her patients were irregular menses, weak flow of blood (2-3 days), weight gain (or loss in some cases), facial hair (hirsutism), increased testosterone levels, darkening of skin, and pain and cramps in abdomen. A thorough review of existing literature was conducted to study the symptoms, patterns and impact of PCOD in the quality of life of women.

Quantitative Methods

Data Collection

A questionnaire was prepared by us, having 21 questions in total regarding the aspects and symptoms of the disease we wanted to study. All the participants were between the ages 18-35, not pregnant and not beginning menopause. A total of 50 research subjects were found between these ages with PCOD.

Participants filled the survey form by their own will. The majority of participants answered the questions on physical forms, on site. Some forms were filled through the use of Google forms. Participants were not paid or given any gifts in exchange for their participation. They were assured that their identities will be confidential and will not be disclosed anywhere for any other use than this research.

Data Analysis

The data collected through the survey was analyzed thoroughly. While most patients were university students with ages between 19-21, patients outside universities were contacted to get data from women of varied ages (15-35).

Firstly, the frequency of PCOD symptoms were studied across different age groups. How the prevalence of PCOS varied was studied across these groups using descriptive statistical approaches.

Next, we studied two major things from the data

1) The ages at which the symptoms started in patients
2) The ages at which they got professionally diagnosed

The next thing we analysed was the patterns of commonly found symptoms in all women participants. The symptoms studied were divided into two categories -

1) Physiological symptoms
2) Psychological & emotional symptoms.

Physiological symptoms studied included : scalp hair thinning (crown baldness), weight gain/loss, excess hair growth (hirsutism), cyst formation, irregular menses, acne, severe abdominal pain and cramps, insulin resistance, darkened skin patches and fertility issues.

The psychological and emotional symptoms included : mood swings, anxiety, depression, decreased body confidence, sleep-related issues, and stress related to fertility.

Certain symptoms tend to vary more in terms of severity in patients which include :
Cysts, irregular menstrual cycle, acne and mood swings.

We studied
1) The frequency of given symptoms across all participants.
2) Severity of specific symptoms across all participants.

Finally, we studied the impact of PCOD in the lives of these women including physiological, psychological and emotional factors.

Observations and Results

The questionnaire used for the survey consisted of 21 questions overall. These questions were regarding their symptoms (presence and absence of common symptoms and severity of certain symptoms), the age of onset of PCOS symptoms, the age of diagnosis, and

measures taken to manage the physiological as well as psychological & emotional symptoms.

The occurrence of the physiological, psychological and emotional symptoms of PCOS varied from person to person. The women were between the ages 15 to 35 at the time of survey.

The following data was observed :

5.1 Analysis of age groups - age of onset of symptoms and age of diagnosis

The largest reported group where symptoms began in these women was 16-20 years (70% of the total women). Along with that, this was also the age group where most women were diagnosed with PCOD, constituting 72% of the women.

Table : Age of onset and diagnosis of PCOD

Age group	Starting age	% of N	Diagnosed age	% of N
11–15	10	20.0%	9	18.0%
16–20	35	70.0%	36	72.0%
21–25	5	10.0%	4	8.0%
26–30	0	0.0%	1	2.0%
31–35	0	0.0%	0	0.0%

While these are the criteria used for the questionnaire, these are two separate marginal distributions and they don’t reveal the time interval between onset and diagnosis in each individual.

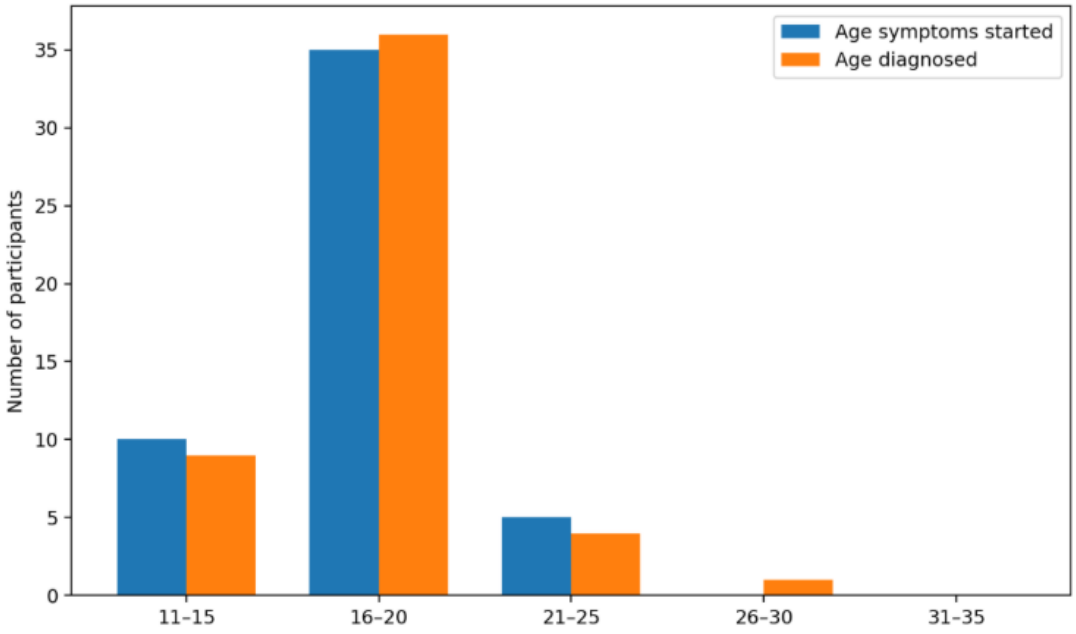


Fig. Age of onset of symptoms and age of diagnosis of PCOD in the participants

5. 2 Analysis of frequency of symptoms

Table : Frequency of the symptoms of PCOD

Sr. No.	Symptom	Category	Number of women with the symptoms	% of N=50
1.	Thinning hair on scalp	Physical	43	86.0%
2.	Irregular menstrual cycle	Physical	42	84.0%
3.	Mood swings	Psychological/emotional	40	80.0%
4.	Severe pain and cramps	Physical	33	66.0%
5.	Weight fluctuation	Physical	34	68.0%
6.	Anxiety	Psychological/emotional	28	56.0%
7.	Acne	Physical	26	52.0%
8.	Decreased body confidence	Psychological/emotional	23	46.0%
9.	Cysts	Physical	21	42.0%
10.	Hirsutism	Physical	20	40.0%
11.	Depression	Psychological/emotional	18	36.0%
12.	Sleep-related issues	Psychological/emotional	18	36.0%
13.	Darkened skin patches	Physical	15	30.0%
14.	Fertility-related stress	Psychological/emotional	15	30.0%
15.	Relationships affected	Psychological/emotional	13	26.0%
16.	Fertility issues	Physical	6	12.0%
17.	Insulin resistance	Physical	2	4.0%

This dataset helps to understand the most frequent symptoms observed verses the least common symptoms found in the population. Although the symptoms vary individually, a pattern can be observed from the data.

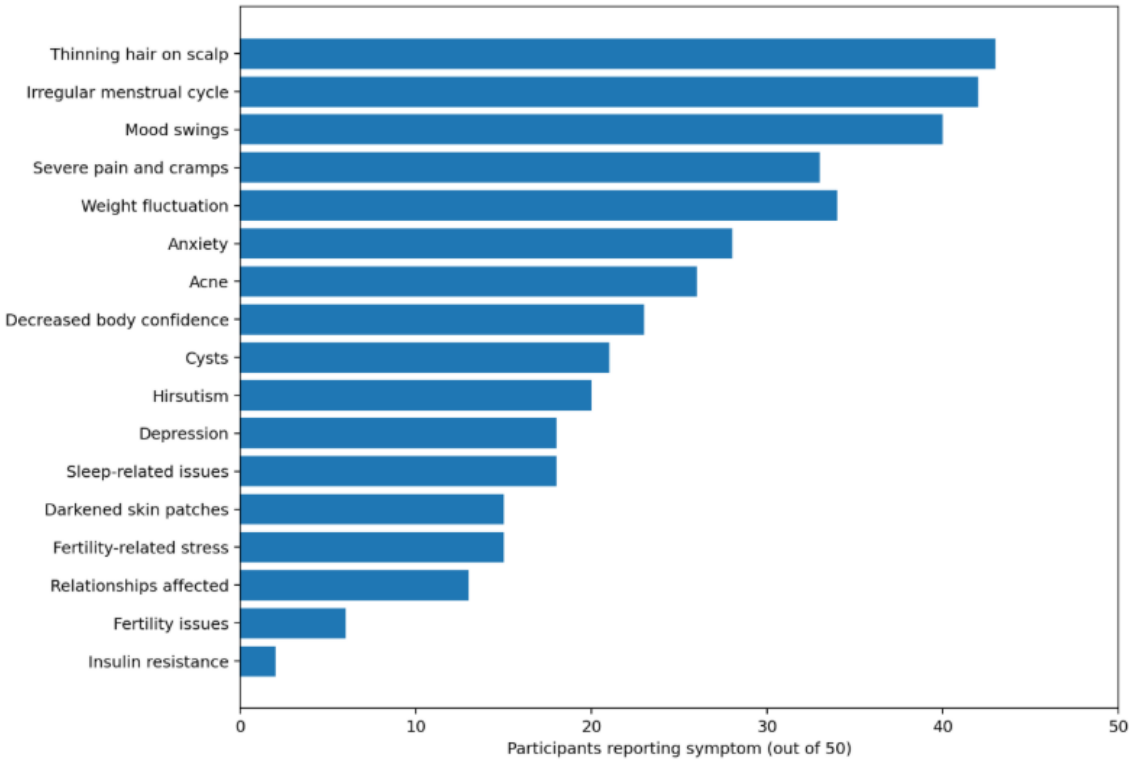


Fig. Frequency of the symptoms of PCOD reported in participants

The most frequently reported physiological symptom was observed to be thinning hair on the scalp (crown baldness) observed in 43 out of 50 women (86%). This was shortly followed by irregular menstrual cycle found in 42 individuals (84%).
The least common physiological symptom was found to be insulin resistance, found in only 2 women (4%). It was also the lowest count on the table.

The most common psychological and emotional symptom was found to be mood swings, occurring in 40 women in total (80%).
The least common physiological and emotional symptom was the effect on relationships with others, found in 13 people (26%).

5.3 Analysis of severity of symptoms

Some general symptoms occur in many women but their severity varies between them. The intensity of these symptoms were broadly classified as ‘acute’, ‘moderate’ and ‘severe’in the questionnaire.

The symptoms taken into consideration were presence of cysts in ovaries, irregular menstruation, acne and mood swings.

The following data was observed :

Table : Severity of selected general symptoms of PCOD

Symptom	Affected	Acute n (%)	Moderate n (%)	Severe n (%)
Cysts	21	9 (42.86%)	12 (57.14%)	0 (0.00%)
Irregular menstrual cycle	42	7 (16.67%)	25 (59.52%)	10 (23.81%)
Acne	26	8 (30.77%)	11 (42.31%)	7 (26.92%)
Mood swings	40	14 (35.00%)	14 (35.00%)	12 (30.00%)

Moderate severity was found to be the most common category for cysts (57.14%), irregular menstrual cycle (59.52%) and acne (42.13%). Whereas, mood swings had both categories, acute and moderate, each reported by 14 individuals (35%), while 12 out of 50 women reported it to be severe.

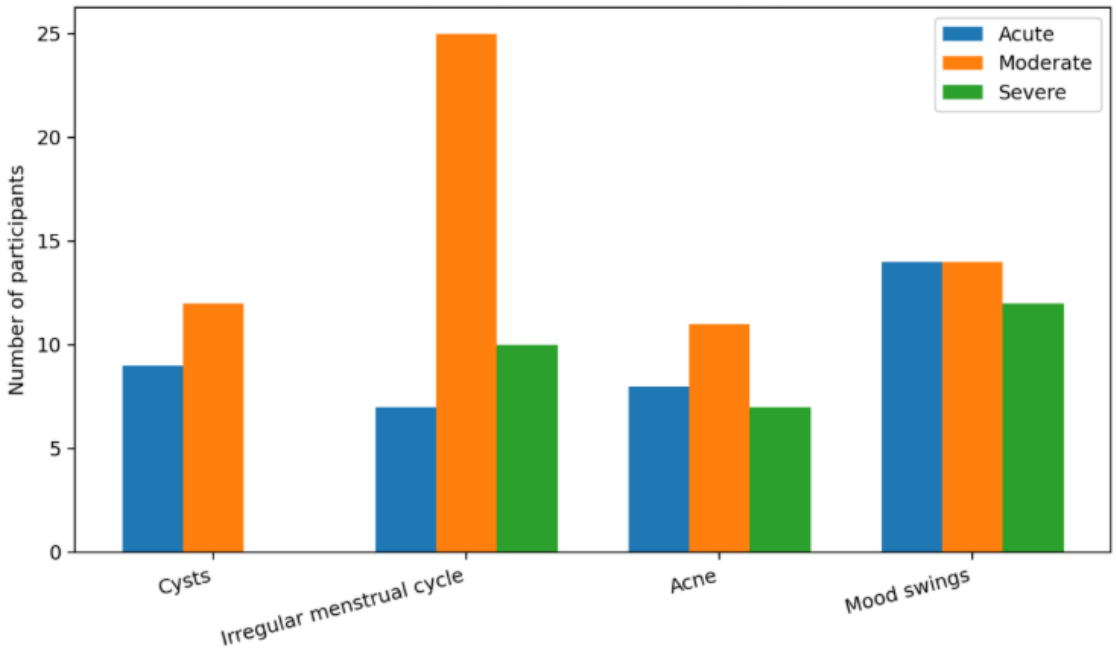


Fig. Severity of certain general symptoms of PCOD

5.4 Analysis of Lifestyle Changes adapted by women to manage the condition

As PCOD cannot be cured, the most effective way to keep it in control is to make lifestyle changes combined with medicines and treatment. Some of the most common lifestyle changes are found to be diet changes, exercise or physical activity, and fixed sleep schedule.

Table : Lifestyle changes adapted by participants

Lifestyle change	Number of women	Count as % of N=50
Diet changes	18	36.0% of 50
Exercise/physical activity	29	58.0% of 50
Fixed sleep schedule	12	24.0% of 50
Other	4	8.0% of 50

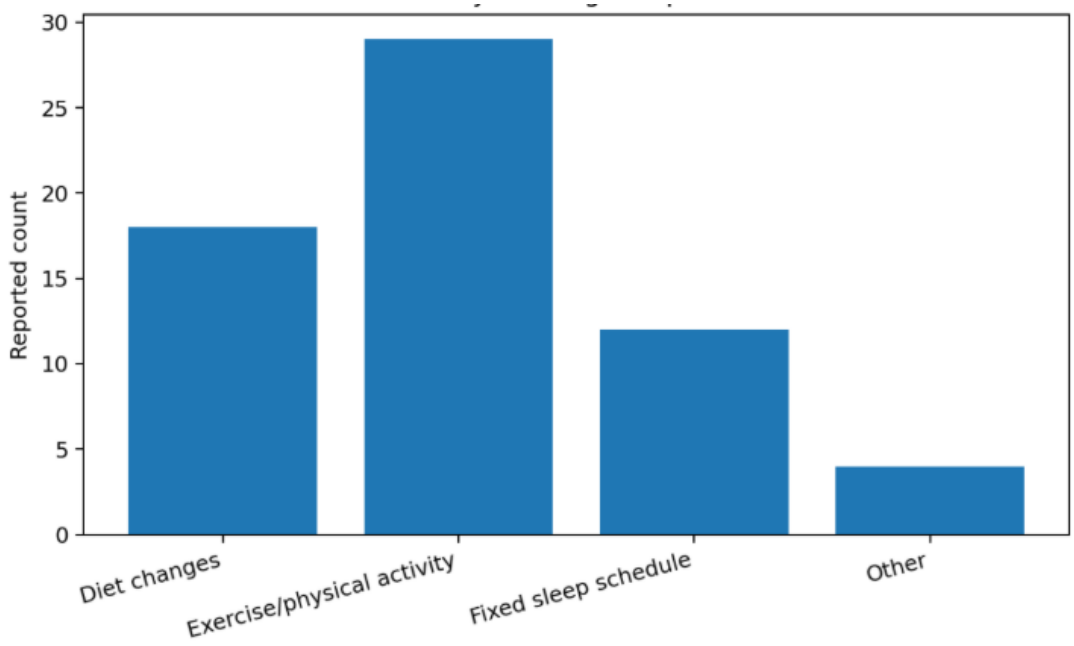


Fig. Lifestyle changes adapted by participants to manage PCOD

Exercise/physical activity was observed to be the largest reported count (58%), followed by diet changes (36%), fixed sleep schedule (24%) and other changes (8%).

5.5 Analysis of measures taken by women to manage psychological and emotional issues

The most common measures taken by women to manage the psychological and emotional issues related to PCOS are talking to family and friends, professional therapy, and managing problems themselves.

The following data was observed

Table : Measures taken to manage psychological and emotional problems

Reported measure	Count	% of N=50
Manage it themselves	26	52.0% of N=50
Talk to friends/family	23	46.0% of N=50
Therapy	1	2.0% of N=50

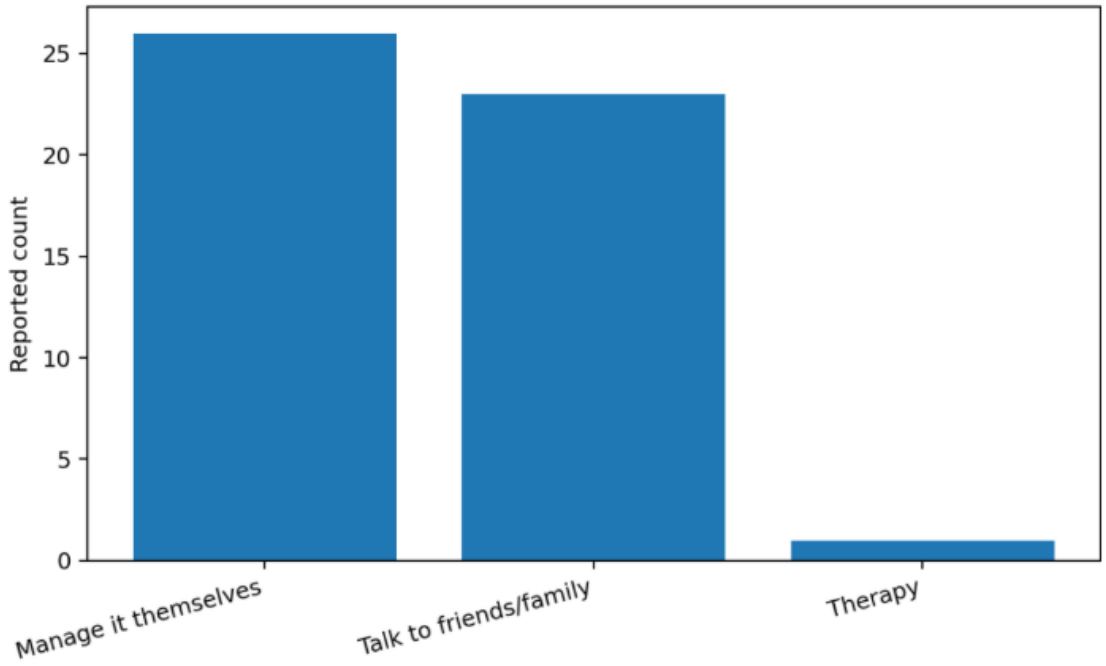


Fig. Measure taken to manage psychological and emotional problems of PCOD

The most common measure reported by this group of women was 'managing it themselves' constituting 52% of women. It was followed by talking to friends and family (46%) and therapy was preferred by only 2% of women.

Note: while interacting with participants we noticed that many of them were hesitant in opening up about their mental health.

The data above was analyzed using descriptive statistical methods.

Discussion

Polycystic Ovary Disease is a hormonal disorder that affects women of reproductive ages. It is a complex condition with various physical, reproductive and psychological manifestations. This condition can significantly impact women's quality of life. It can cause major fertility issues, and even cardiac and diabetic issues if it gets severe. Women also face physical symptoms like weight gain, acne, hirsutism, hair loss etc. This can cause major body dissatisfaction and mental stress to the patients along with the hormonal imbalances and its effects.

While studying the symptoms in our participants, we found that the most common physiological symptoms were thinning of hair on the scalp (crown baldness) and irregular menstrual cycle in this particular group.

As stated in the study by M. Azizi and F. Elyasi (2017), two general categories emerged - (a) psychosocial concerns (body dissatisfaction, body weight, fertility concerns, etc) and (b) psychiatric disorders (Mood disorders, anxiety disorders, major depressive disorders, etc). We came across similar concerns in participants in our study where a significant portion of women were struggling with body dissatisfaction and about 30% women had concerns related to fertility. Mood swings were the major psychological and emotional symptoms constituting 80% of women dealing with them. Along with that, anxiety and depression were prevalent in these women. These statistics show how much impact PCOD has in the day to day lives of these women, especially on their mental health.

Similar results were found in the study done by S.K. Veltman - Verhulst (2012) in which they stated that women with PCOD exhibit significantly more emotional distress compared with women without PCOD.

In our study, we observed how the physiological and physical symptoms like weight gain, acne, thinning of hair on the scalp, hirsutism, etc. correlated with psychosocial problems in women like decreased body confidence, and psychological manifestations like anxiety and depression. This resembles the results of the study done by Kristen Farrell and Michael H. Antoni (2010) where they stated that the physiological and psychological aspects of PCOS are strongly interrelated.

The same study discusses that medical management of PCOS would greatly benefit from inclusion of psychological and behavioural approaches but, in our study we found that women preferred to manage the psychological and emotional problems by themselves

instead of seeking professional help. This reflects how these aspects are neglected majorly, even when professional therapy is needed. It also presents the need for medical professionals to include psychological and emotional issues and provide a holistic treatment to women with PCOD/PCOS.

In the year 2005, J. C. McCook studied that the most common health-related quality of life concern reported by women with PCOS was weight. But we found that the most common health-related quality of life concern for this particular group of women was thinning of hair on the scalp and irregular menstrual cycles. The same study also discusses that psychological implications of PCOS are easily underestimated and mental symptoms have been ignored to a large extent, which is in conformity with our analysis of the data of these participants.

Regarding lifestyle changes made by women, the majority of women implemented the habit of exercise and physical activity to manage the symptoms of PCOD, most preferring yoga as it proved to be the most effective form of movement for them. These lifestyle changes, including diet changes and fixed sleep schedule, helped improve the quality of most women's lives.

Conclusions and Future Directions

In conclusion, using the available data we analysed the physiological, psychological and emotional symptoms of PCOD in women, hence studying the impact these factors have in their day-to-day lives. The project was conducted from February to April, 2023 in Nagpur, Maharashtra. Firstly, a review of existing literature was done in order to understand the condition thoroughly and its psychological and emotional aspects were studied along with the physiological ones. Data analysis was performed by using descriptive and inferential statistical methods.

50 women with PCOD, from ages 15 to 35, participated in the study conducted by us in Nagpur, Maharashtra, India. Most women (70%) initially experienced the symptoms of PCOD in between the ages 16-20. Most women (72%) were also diagnosed when they were between the same ages. We can also conclude that among the 50 cases of PCOD studied, most women experienced the symptoms starting at the age of 16-20 and most also got diagnosed within the same range. This indicates that the age of onset of PCOD is in the late teens, and it might also be the case that the age has decreased over the years. This can be explored in future studies.

After analysing the symptoms of these women, the most recurrent physiological symptoms were found to be thinning of hair on scalp and irregular menstrual cycle constituting 86% and 84% of the population, respectively. Whereas the dominant psychological and emotional problems were mood swings (80%) followed by anxiety (56%). The least common physiological symptom was found to be insulin resistance which was present in only two women. Whereas fertility issues constituted 12% of the population.

Severity of four general symptoms were studied; cysts, irregular menstrual cycle, acne and mood swings. In most women, these symptoms were in moderate conditions.

The lifestyle change adapted by most women (48%) to manage the symptoms was found to be exercise/physical activity.

Measures taken by women to manage emotional and psychological aspects varied, but most (52%) preferred to manage it themselves instead of seeking professional help or talking to friends and family. Although it was the most preferred option, it was not helping their condition. This reluctance of women to address their psychological and emotional issues related to PCOD indicates the need to involve professional approaches in the clinical management of the mental health of women. It also helps us suggest that the physiological and emotional aspects are usually neglected by society and their impact on a woman's health is severely underestimated.

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Future directions

The study highlights the importance of treating PCOD as a complex disorder which not only has physiological effects, but also psychological and emotional manifestations. This disorder negatively impacts the quality of lives of women on a consistent basis. Hence, it is necessary to include these factors in medical treatments and management of the disease. It is also necessary to include these aspects of PCOD/PCOS in scientific research and studies, so we can understand and address the disease in multiple layers. It will help improve the treatment of PCOD, providing a thorough approach. The reasons behind the early onset of symptoms related to PCOD and PCOS also need to be studied in depth.

Limitations of the study

This data is limited to 50 women in Nagpur, Maharashtra between the ages of 15 to 35. The data is based on a survey conducted by us in the city. It is limited to the general physiological, psychological and emotional symptoms that were based on a questionnaire.

PCOD is used as an umbrella term by the locals for both clinical PCOD and PCOS, hence although care was taken it might have limitations as data regarding symptoms was collected through a self-reported survey of participants. Other symptoms may also be experienced and the data found in the study may not be applicable to every other study.

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