

Barriers and facilitators to exercise participation in women with polycystic ovary syndrome: a qualitative study

Manjushree Umamaheswar ¹, Shweta S Bhatbolan²

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MU and SSB contributed equally.

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ABSTRACT

Background Polycystic ovary syndrome (PCOS) is an endocrine disorder known to affect women's participation in different aspects of life. The aetiology of PCOS is not well understood, although exercise and a 5% reduction in body weight and waist to hip ratio are said to improve its symptoms. Thus, exercise participation is seen as the first line of treatment in women with PCOS. Although there are proven benefits to exercise participation, women with PCOS are known to rarely actively participate in exercise behaviour; thus, understanding the barriers and facilitators to participation is important to this population.

Aim To identify the barriers and facilitators to exercise participation in women with PCOS.

Design Qualitative study.

Subjects and methods 16 participants with PCOS were recruited. A qualitative indepth interview method was adopted to identify the barriers and facilitators to exercise participation in women with PCOS.

Results Most participants mentioned that no information on PCOS and no advice on physical activity were given to them on diagnosis of the condition. Thus, this lack of education on the role of physiotherapy or exercise in PCOS prevented them from participating in exercise for a substantial amount of time. Other identified barriers included lack of time, laziness, work pressure, climate changes and tiredness. Social support and health concerns were identified as facilitators to participating in exercise.

Conclusion We identified that the main barrier to exercise participation in women with PCOS was lack of education, awareness and knowledge about the condition and the role of physiotherapy in PCOS. Meanwhile, social support and information or knowledge about exercises were identified as the biggest facilitators to exercise participation.

INTRODUCTION

Polycystic ovary syndrome (PCOS) is a heterogeneous, multifactorial, complex genetic and endocrine disorder¹ that affects up to 6%–20% of women of reproductive age.² The key clinical features of PCOS include menstrual dysfunction (ie, oligomenorrhoea or amenorrhoea), obesity, hirsutism and infertility. PCOS is also associated with several cardiometabolic risk factors, such as central obesity, insulin resistance, metabolic

WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ Exercises are effective in the management of polycystic ovary syndrome (PCOS).
- ⇒ Despite the constant emphasis on including exercise in the management protocol for PCOS, a substantial proportion of individuals either do not start or discontinue exercise at various stages of treatment. Therefore, this study was conducted to identify the factors acting as barriers and facilitators that affect exercise participation among women with PCOS.

WHAT THIS STUDY ADDS

- ⇒ There is lack of knowledge on the role of exercise in PCOS management in this patient population.
- ⇒ Those with knowledge reported on whether their own body image perception acted as a barrier to initiating and continuing exercise, while motivation from friends and family was reported as a facilitator.
- ⇒ The findings suggest that the lack of knowledge among women with PCOS on the role of exercise in the managing the condition has been identified as a barrier to exercise participation, while social support and health concerns were recognised as facilitators.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ Educating women on the role and importance of incorporating exercise in their lifestyle and providing a tailored exercise prescription, while considering its feasibility to perform at home, may help address concerns about body image as a barrier.
- ⇒ The results call for further investigation into the psychosocial, economic and health-related factors that may influence adherence among these patients.
- ⇒ Future studies should explore ways to improve adherence in younger populations, taking into account factors specific to that age group.
- ⇒ Physiotherapists should emphasise personalised adherence strategies based on age, education level and geographical location in their practice.
- ⇒ Training healthcare workers to be empathetic and culturally sensitive could help reduce patient fears and encourage continuous engagement with exercise protocols.



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¹Obstetrics and Gynecology Physiotherapy, SDM College of Physiotherapy, Dharwad, Karnataka, India

²Community Physiotherapy and OBG Physiotherapy, SDM College of Physiotherapy, Dharwad, Karnataka, India

Correspondence to

Dr Manjushree Umamaheswar; manjushreeumamaheswar@gmail.com

syndrome, hypertension, low-grade chronic inflammation and poor cardiorespiratory fitness.³ PCOS, therefore, affects the daily life of many people.⁴

The widely used diagnostic criteria for PCOS is the Rotterdam criteria, which suggests that ultrasound is diagnostic if conducted using a transvaginal approach.

- ▶ According to the Rotterdam criteria, two out of the following three criteria must be present to diagnose PCOS: (1) hyperandrogenism, (2) menstrual irregularity and (3) polycystic ovaries on ultrasonography.
- ▶ According to the Androgen Excess Society criteria, the following two criteria must be present to diagnose PCOS: (1) hyperandrogenism and (2) menstrual irregularities or polycystic ovaries on ultrasonography.
- ▶ According to the National Institutes of Health criteria, the presence of the following should be considered diagnostic of PCOS: (1) hyperandrogenism and (2) menstrual irregularities.⁵

The 2003 Rotterdam criteria is internationally recognised as a tool for diagnosing PCOS,⁶ and the recent 2023 guidelines suggest the following:

- ▶ Step 1: irregular cycles+clinical hyperandrogenism=diagnosis.
- ▶ Step 2: if no clinical hyperandrogenism, test for biochemical hyperandrogenism=diagnosis.
- ▶ Step 3: if *only* irregular cycles *or* hyperandrogenism in adolescents, ultrasound is not indicated.

In comparison with 30% of women in the general population, around 50%–60% of women with PCOS are found to have elevated body mass index (BMI).⁷ This population is also more likely to develop insulin resistance and metabolic syndrome. Due to an increased rate of androgen production, women with PCOS have increased visceral and subcutaneous body fat distribution.

Recent guidelines suggest that exercise plays a very important role in the management of PCOS and that lifestyle management should be considered the first line of treatment. The guidelines further mention that population-specific strategies should include optimising healthy weight through lifestyle changes as the first measure. This in turn will help improve the underlying hormonal disturbances, insulin resistance and hyperandrogenism by improving insulin sensitivity or decreasing insulin resistance, thus preventing further metabolic disturbances and future reproductive and metabolic complications, and improving quality of life. The 2018 International PCOS Guideline provides an evidence-based recommendation suggesting lifestyle therapies (dietary, exercise, behavioural or a combination of these) should be the first-line of care for PCOS.⁶ Exercise is a well-known treatment option for preventing and controlling chronic diseases in the general population, as well as in women with PCOS.^{8,9}

Lifestyle interventions are defined as interventions intended to improve physical activity levels or food consumption by providing suitable behavioural support. Weight and lifestyle management is the first-line therapy in international evidence-based guidelines for PCOS.

Components of lifestyle change include diet, physical activity and behavioural change, as well as psychological and sleep interventions.¹⁰

The International Evidence-Based Guideline for the Assessment and Management of Polycystic Ovary Syndrome emphasises the role of weight control in patients with PCOS identified to have elevated BMI. A 5% weight loss is linked to improved metabolic and reproductive health indices, as well as psychological benefits.¹¹

Research suggests that moderate-intensity aerobic exercise may improve metabolic and reproductive features, body composition and psychological well-being in overweight women with PCOS.¹² Adults aged 18–64 should engage in moderate-intensity physical activity for 150 min per week, vigorous-intensity activity for 75 min per week or a combination of the two. Physical activity should be moderate to intense in intensity, and muscle-strengthening exercises should be done at least three times a week. Women with PCOS should engage in regular exercise or physical activity, although research from the general population suggests that exercise combined with a hypocaloric diet has a stronger ability to achieve weight loss.¹³

Studies in the past have brought attention to difficulties with weight control in PCOS, such as feeling ‘abnormal’ or like a ‘freak’. Due to lack of information, women with PCOS may be confused about why they are experiencing symptoms, which can result in feelings of helplessness and shame.¹⁴

Little qualitative research has been done on lifestyle management for women affected by PCOS and their experiences of weight control. The diagnosis and general management of PCOS have been the subject of previous qualitative research on women with PCOS, providing important insights into this population’s unmet needs in various areas of their care. However, there has not been much research on how women afflicted with PCOS handle their weight and change their lifestyle. Therefore, the aim of this study was to determine the facilitators and barriers to exercise participation in women with PCOS.¹⁵

Although there has been research done to identify the barriers and facilitators to exercise participation in other countries, perceptions among rural Indian populations are sporadically documented. With the growing prevalence of PCOS, it is of utmost importance to identify the barriers and facilitators to exercise participation in women with PCOS, and to identify the reasons why women suffering from PCOS are not getting physiotherapy treatment, as well as the factors acting as barriers or facilitators to participation in exercises.

Thus, this qualitative research aimed to study people’s experiences and situations and identify the barriers and facilitators from their point of view, given that people’s experiences vary significantly. Evaluation of literature reveals that adult women with PCOS experience challenges with conception, which may work as a facilitator to adopting exercise behaviours. However, such understanding of facilitators and barriers among adolescents

and unmarried women with the disease is scarce. Given the critical importance of physical activity in teenagers and women with chronic PCOS, the goal of this study was to obtain a comprehensive understanding and documentation of the possible barriers and facilitators to exercise participation in women with PCOS, as understanding the barriers to participation and the facilitators of active engagement in women with PCOS is critical to increasing exercise participation.

MATERIALS AND METHODS

Study subjects

This study included women diagnosed with PCOS.

Selection criteria

Inclusion criteria

- ▶ Women (both married and unmarried) diagnosed with PCOS by a certified medical practitioner.
- ▶ Aged 18–45.
- ▶ Patients who were willing to give written informed consent.

Exclusion criteria

- ▶ Pregnancy.
- ▶ Recent injuries (within 7 days).
- ▶ Severe neurological conditions.
- ▶ Schizophrenia.

Study area

The study was conducted in and around Dharwad, Karnataka.

Study period

The study was conducted for a period of one year.

Data collection

Methodology

Patients referred to the department of physiotherapy from the obstetrics and gynaecology department were screened according to the inclusion and exclusion criteria. Patients who met the inclusion criteria were explained about the study. Patients who were willing to participate, who understood that the interview would be audio-recorded and that transcripts would be created, and who gave written consent were interviewed for this study. The participants were interviewed for approximately 45 min. Demographic characteristics were recorded, and semistructured face-to-face interviews were conducted, with open-ended questions and possible follow-up questions asked based on the answers. Pen and paper was used to create transcripts of the interview, and the data collected were considered in the thematic qualitative analysis.

- ▶ Study design: The study used a qualitative indepth interview method.
- ▶ Sample: The study included 16 participants (when data saturation was reached).
- ▶ Sampling: Participants were selected through purposive and convenience sampling.

Table 1 Sociodemographic characteristics of the participants

Characteristics	Total (N=16)
Age	
18–30	14
31–45	2
Marital status	
Married	3
Single	13
Occupation	
Staff	2
Students	13
Housewife	1
Symptoms	
Menstrual irregularity	12
Stomach pain	8
Back pain	2
Acne	1
Continuous bleeding	1
Weight gain	6
Hair growth	5
White discharge	2
No bleeding	1
Behavioural changes	
Sleep	2
Mood swing	5
Frustration	1
Irritability	9
Tensed	1
Angry	5
Stress	8
Depressed	2
Food habits	
Eating chicken	1
Packed foods	2
Green leafy vegetables	1
Sweets/chocolates	7
Outside food	4
Avocado	1
Pickle	1

- ▶ Sampling procedure: In this qualitative research, data of women above 18 years old who have been diagnosed with PCOS and who fulfilled the inclusion criteria were included. Subjects who were willing to participate in the study were explained, in an understandable language, about the purpose of the study before written consent was taken and the interviews conducted.

Data collection

Data were collected from physiotherapy outpatient department OPD by face-to-face, indepth interviews. First, data on participants' demographics and anthropometric measurements were documented, and face-to-face indepth interviews were conducted regarding PCOS awareness status, source of information, treatment log, decision-making in seeking healthcare and choosing a health agency, barriers to seeking treatment, barriers to doing exercises, opinions on treatment satisfaction and expenditures incurred. To collect relevant data, semi-structured, open-ended questions were prepared for direction, and the replies were transcribed. The interview lasted approximately 45 min, with no one else present besides the participant and the researcher.

Study analysis

An indepth interview was conducted and the information obtained was analysed qualitatively.

Data analysis

There is consistency between the data presented and the findings.

RESULTS

Description of study respondents

A total of 87 individuals were approached for this study, of whom 44 were diagnosed with PCOS and 43 were not. Of the 44 participants diagnosed with PCOS, 24 did not meet the inclusion criteria. Thus, 20 were eligible, and out of these 20 participants, 4 refused to give consent, resulting in 16 participants being included in the study.

Table 1 shows the sociodemographic characteristics of the participants, while table 2 shows the barriers and

facilitators to exercise participation in women with PCOS, according to anchor codes. Table 3a,b shows the barriers and facilitators to exercise participation in women with PCOS, according to clusters.

Figures 1 and 2 show the themes derived on the barriers and facilitators to exercise participation among women with PCOS.

Themes related to barriers to exercise participation in women with PCOS

Cluster 1: information about the role of exercises in PCOS

Education on PCOS as a condition was rarely provided by healthcare professionals. Most participants said that no one explained what kind of disease or disorder PCOS is. In fact, some reported being told that getting their period was enough, regardless of irregularity. Of all the participants interviewed, no one reported understanding PCOS as a condition. Only a few, who were medical students and had an interest in the condition and were able to understand and access medical literature, were able to search for information on what the condition is.

Lack of education/awareness/knowledge

As such from the doctor no, but I had few seniors, few post-graduate students of obstetrics and gynaecology, so I spoke to them they helped me a little and text books obviously I followed more of that text books. (Participant 4)

They did not explained in detail about this condition, only they told when you get periods the ovaries ligaments get stretched and because of that you are getting pain. (Participant 2)

My uncle told me that the fallopian tube had some kind of block, and then it could be opened with homoeopathic medicine, and if eggs were not entering the fallopian tube, from medicines it would get corrected. (Participant 1)

Table 2 Barriers (anchor code 1) and facilitators (anchor code 2) to exercise participation in women with PCOS

Serial no.	Anchor code 1			Anchor code 2		
	Barriers to exercise participation in women with PCOS	Code count	Case count	Facilitators to exercise participation in women with PCOS	Code count	Case count
1	Lack of education	10	8	Family	7	6
2	Overthinking	1	1	Friends	2	2
3	Lack of determination	2	2	Education	5	5
4	Lack of interest	2	2	Technology	5	4
5	Lack of concentration/focus	1	1	To lose weight	7	4
6	Lack of time	5	4	To gain weight	1	1
7	Work pressure	3	3	To have regular periods	4	3
8	Family responsibility	3	2	To stay fit and strong	3	3
9	Lack of support	1	1	Self-image	1	1
10	Climate changes	3	2			
11	Laziness	4	4			
12	Fatigue	1	1			
13	Tiredness	4	2			
PCOS, polycystic ovary syndrome.						

Table 3 Barriers and facilitators to exercise participation in women with PCOS: clusters

Barriers	Facilitators
Cluster 1: information about the role of exercises in PCOS	Cluster 1: social support
Lack of education/awareness/knowledge	Family
	Friend
Cluster 2: psychological factor	Cluster 2: information about PCOS and physical activity
Overthinking	Education
Lack of determination	Technology
Lack of interest	
Lack of concentration/focus	
Cluster 3: attitudes towards exercise	Cluster 3: beauty concerns
Lack of time	Self-image
Workload/pressure	
Family responsibilities	
Lack of support	
Climate change	
Cluster 4: lack of energy	Cluster 4: health concerns
Tiredness	To lose weight
Fatigue	To gain weight
Laziness	To stay strong and fit
	To have regular periods
PCOS, polycystic ovary syndrome.	

No, till my last visit here, I did not know the reason for my problem, even though I have informed about my irregular periods and no flow. They told it's fine no problem anyway you have periods. (Participant 5)

No ma'am, no education was given about PCOS. (Participant 7)

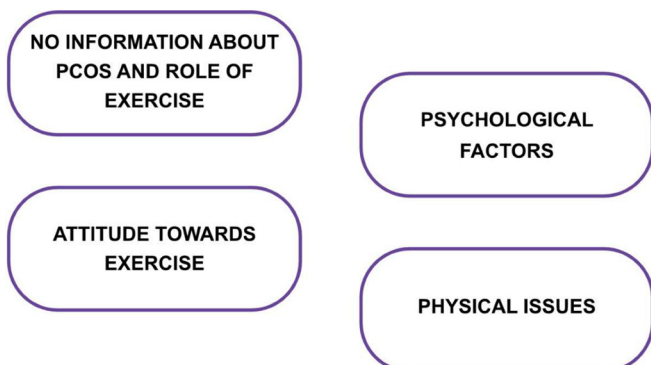
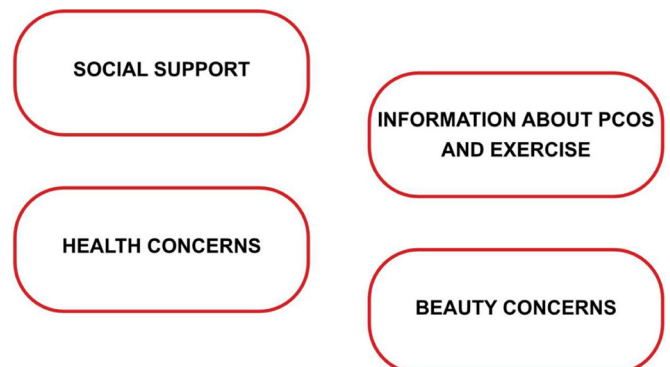
That time no one told me but they told me "stop eating junk food because of junk food liking, I use to eating oily food or more of pickles it might mean affect your periods." That time gynecologist she told me you have means because your much more stress that's why means you are getting abdominal pain and because of that appendicitis

you are getting abdominal pain this cyst will go just your periods will get regular know so it will go. (Participant 8)

I don't have any information about exercises that can be done for this, so I don't do. I don't know any exercises that can help me with this problem, so I didn't do. (Participant 10)

I don't know about PCOS. Because I don't have knowledge about physiotherapy. (Participant 14)

Yes, I consulted a doctor near my home; there they told me that in the beginning it would be like this, but afterwards it would be regular. After that, I didn't consult any doctors;

**Figure 1** Barriers women with PCOS face when engaging in exercise. These could include physical, psychological, social or environmental challenges, such as fatigue, body image concerns, lack of time or lack of unsupportive environments. PCOS, polycystic ovary syndrome.**Figure 2** Facilitators that encourage exercise participation. These may involve motivational factors, social support, accessible facilities or structured exercise programmes tailored to women with PCOS. PCOS, polycystic ovary syndrome.

directly, I consulted in SDM, and only here were they diagnosed with PCOD. (Participant 16)

Cluster 2: psychological factor

A low quality of life is experienced by patients with PCOS. Women who had PCOS described a diagnosis of PCOS as having effects on their psychological health, influenced by the symptoms they had. These women exhibit sadness, higher levels of anxiety and affective disorders, and have a higher number of stressful life events than other patients, which can lead to psychological issues. Exercise improves the psychological well-being of women with PCOS. Most participants said that they are delaying performance of exercise due to lack of determination, lack of interest, overthinking and lack of focus/concentration.

Lack of determination

All thing that help me is exercises but lack of focus, determination. (Participant 12)

I feel like procrastinating, like forwarding the work. I keep it delaying, like, "Let me do it tomorrow." "Let me do it in the evening." I postpone the work so that makes me forget it, and I miss it sometime in the middle. (Participant 9)

Lack of interest

Yeah, a lack of interest, like, "Who will do?" and all that. (Participant 6)

Not interested. (Participant 16)

Overthinking

Due to overthinking, I was not able to perform exercises properly. (Participant 1)

Lack of focus/concentration

Now also i am like that way but lack of time and concentrations, no dedication. (Participant 12)

Cluster 3: attitude towards exercise

Exercise can be of great importance to patients diagnosed with PCOS. Exercise can help patients to regulate their menstrual cycle and lose weight. Participating in physical activity is a known first line of treatment for PCOS; however, participation or adoption of exercise behaviours has been met with many challenges, with the participants in our study reporting reasons such as lack of time, lack of support/motivation and workload. Other factors reported include family responsibilities and climate conditions.

Lack of time

Sometimes I felt like why they are telling only exercises!, why they are not telling any tablets, first of all I don't have time, in that how should I give 1 hr time, for walking (30 min), exercise (30 min). (Participant 2)

Time constraint is a problem for me. (Participant 5)

Since I joined college not getting time. (Participant 11)

Lack of time. (Participant 12)

Involved in work/work pressure

2nd thing is the other work that we have like exams. (Participant 4)

I couldn't exercise because I had my project work and everything. (Participant 6)

Sometimes family situations arise because of the work load and pressure. Because of situations and all, I will sleep late nights more. So if I sleep at 1, I am not able to wake up early. (Participant 14)

Family responsibility

Sometimes family situations arise. (Participant 14)

Means function was there, so I slept late in the night and couldn't wake up in the morning, and ugadi was there, so that time I skipped. If functions were there that time only, I skipped, and that's it. (Participant 16)

Lack of support

No one helped me to perform exercises. (Participant 3)

Climate changes

Now it is like cold climate not able to get up early. (Participant 8)

Sometimes I am unable to jog because of the weather, such as during the rainy season. (Participant 14)

Cluster 4: lack of energy

Fatigue, caused by PCOS, is the only symptom that most significantly affects daily living. A few of the participants interviewed mentioned laziness, tiredness and fatigue as issues interfering with daily performance of exercises.

Laziness

The barrier is our own laziness one thing. (Participant 4)

Due to laziness, I was not able to perform exercises properly. (Participant 1)

Yes, laziness's. (Participant 16)

Little bit of laziness was there, like, "Who will do?" (Participant 6)

Tiredness

Ya, sometimes I have a lot of work if I have to study or do some other work, then I used to miss out, and also during my COVID time, I did not exercise for a long time because I was tired and not in good health, so I did not exercise during those days. (Participant 6)

It was about the way I used to feel tired at the end of the day, even if I decided today would go back and I would do it, or if I set a morning alarm and today I exercised, but still it was too tiring to get up and work out. (Participant 7)

Fatigue

May be it was because I was getting fatigue. (Participant 7)

Themes related to facilitators to exercise participation in women with PCOS table 3

Cluster 1: social support

Participants mentioned that social support is the most important thing. Many participants who were interviewed

reported that their family and friends supported them in performing exercises, finding that they are the major deciding factor in performing exercises or even visiting their doctors.

Family/friends

My mom was like you should do exercises, they are telling for your sake. if you are doing like this, then how patients are going to come to you for treatment. Then she was like see how much you are suffering now. From then daily my parents starts motivating me. (Participant 2)

I reduced eating from outside, so that is controlled by me. Any craving if it comes, I ignore myself and not eat. My family and my friends also helped me in that way. (Participant 6)

My mother used to say the same thing that you try to switch on to a healthy diet as much as possible because she was like, "When you are at home, you never had this; you always had your regular periods." You should try to stick to that. Here home food is what we have. Try to stick to that. And then, when I contacted my senior, she told me that cutting off these packed foods that you are having also helps a lot. (Participant 7)

When family wakes me up in the morning and makes me do exercises, and friends always taunt me in the same way: "You are fat, you need to work out more, and you eat less junk food." Ya, they are helpful. (Participant 9)

yes ma'am, family members and friends supports me to do exercises. (Participant 14)

I am motivated from my mom. (Participant 11)

Cluster 2: information about PCOS and physical activity

None of the participants we interviewed reported education being provided to them by any of the healthcare providers, whether PCOS was diagnosed by a physician, an Ayurveda practitioner or a homeopathy practitioner. Whatever knowledge they have about the condition was acquired either from books or from the internet. Therefore, very few knew the role of physiotherapy exercises in the treatment of PCOS. Meanwhile, participants who understood the role of physical activity tried continuing exercises, although they faced different challenges. Information from the media and Google helped educate them on PCOS as a condition. Very few participants we interviewed mentioned they knew about the role of physical activity in PCOS. They also mentioned that education on physical activity motivated them to perform exercises.

Education

After joining this college, one of the anesthesia doctor in operation theatre technician and Head of Department of that anesthesia department told me that you go and consult physiotherapy once, your weight and your problems all will get reduced and I was having problems of doing night shift their because of this, so I consulted physiotherapy before my admission. (Participant 2)

No I being a physiotherapist I had some knowledge about that so I used to perform exercises on my own. (Participant 9)

As I am in this profession, I know how important these physical activities are to me. And I know that medications are temporary, so I started doing this. (Participant 13)

Education about doing these exercises and how it actually helps me. (Participant 13)

When I joined physiotherapy, I got knowledge about PCOD. That time, I came to know that if "I didn't take treatment, further complications would be there." (Participant 14)

Technology

1st Pre-University College that is when I got to know about exercises through YouTube. (Participant 14)

By watching YouTube, I was doing 2-3 types of exercises. (Participant 16)

NO, came to know about it now by Google search. (Participant 15)

One was at least through the media mostly, and certain books through books mainly through media actually tried. (Participant 7)

Cluster 3: beauty concerns

Of all the participants interviewed, only one mentioned beauty concerns as the motivating factor to continue with exercises.

Self-beauty

Self-beauty. (Participant 12)

Cluster 4: health concerns

Few participants mentioned that they were concerned about their health. Most participants mentioned that their motivations to perform exercises were mainly to reduce weight, to have a regular menstrual cycle, and to stay strong and fit. One participant mentioned their motivation to perform exercise was to gain weight.

To gain weight

I was doing to gain weight. (Participant 8)

To lose weight

I know that even if I don't exercise for a month, I will gain a lot of weight, so I know that I have to keep it regular to keep my weight at least, you know, under control. Otherwise, periods will not come, and weight also goes on increasing, so I have a bad time if I don't. (Participant 6)

To lose weight and get back to how I was prior to that, which was motivated. (Participant 7)

Because of my weight gain, ma'am, even if I don't eat more food, my weight will also increase. I used to feel heaviness when I didn't have anything, too. Then I started to lose Weight. (Participant 14)

Sometimes it makes me gain weight. (Participant 9)

To stay strong and fit

Self-motivation, I want to become stronger and healthy. (Participant 5)

But once I started seeing results, I was very motivated, and I couldn't even leave one day without exercising. Just to become better, nothing else. (Participant 6)
So yeah, to be fit. (Participant 9)

To have regular periods

I have to get out of this problem; that's it. The pain will be there for 2 to 3 days. If I do it daily, I have hope that it will get reduced. (Participant 3)
Get back to how I was prior to that, which was motivated. The second thing I want my periods to be regular. (Participant 7)
To get my periods as soon as possible. (Participant 9)

Summary

The present study was conducted at a tertiary hospital that caters to patients from rural backgrounds. Study participants were in the age group of 18–45 years. Lack of education, awareness and knowledge about the condition and the role of physiotherapy in PCOS was identified as the specific barrier to exercise participation faced by Indian women from rural backgrounds, while social support and information or knowledge about exercises as well as health concerns were identified as the biggest facilitators.

Strengths and limitations

There were some limitations to this study. First, majority of the population in this study was under 18–45; thus, possible difficulties and complexities faced in later years are not completely understood. Second, since most of the codes often repeated among the 16 participants, we decided against using a bigger sample size. The study covered participants of childbearing years and gave insights into the barriers and facilitators to exercise participation among women diagnosed with PCOS in an Indian rural set-up.

DISCUSSION

According to the findings of the current study, lack of awareness, education and knowledge was the biggest barrier, whereas social support and health concerns were the biggest facilitators.

In one study by Thomson *et al.*¹⁶ time constraints, exhaustion and lack of confidence in one's ability to maintain physical activity were the key impediments that women affected by PCOS were more likely to report, as compared with those unaffected by PCOS. Similarly, in our study, participants mentioned time constraints as a factor, with other barriers to exercise involvement for PCOS including lack of education, work pressure, family duties, lack of support, climate fluctuations, laziness, exhaustion and tiredness.¹⁶ Majority of the participants in the study reported having depression and anxiety.

The findings of our study are similar to Farkas *et al.*¹⁷ who reported that this gynaecological disorder of endocrine origin, which is becoming more common, can be associated with a great number of psychological

symptoms (such as depression, anxiety, body image dissatisfaction, eating and sexual disorders and low life satisfaction). In our studied population, excessive thinking or overthinking, lack of interest, lack of focus, lack of determination, exhaustion and tiredness were frequently mentioned by the participants as barriers to exercise participation.

According to certain data, two-thirds of women affected by PCOS struggle with their weight, which may contribute to the higher prevalence of depression in this population compared with the general population.¹⁷ Participants in the current study also stated that the biggest limitation preventing them from consulting a physiotherapist is lack of knowledge about the importance of physical activity in PCOS.

The aim of a study by Shishehgar *et al.*¹⁸ was to compare the levels of physical activity and the parameters connected to it between women with PCOS and non-hirsute women with eumenorrhoea, and it was evident that women with PCOS are not fully aware of the value of and requirements for physical activity in managing PCOS symptoms and minimising its long-term effects. To avoid the long-term negative effects of insulin resistance seen in women with PCOS related to lack of physical exercise, healthcare professionals should motivate them to become more active.¹⁸

Lack of knowledge about structured exercise programmes or the role of physiotherapy in designing the exercise protocol was not informed. Instead of being given a structured exercise protocol, women were only advised about walking.

CONCLUSION

The major barrier we found in our study was lack of education, awareness and knowledge about the condition and the role of physical activity in PCOS. Other barriers identified include lack of education, overthinking, lack of focus, lack of interest, lack of time, work pressure, family responsibilities, climate changes, laziness and exhaustion. On the other hand, social support, education, beauty concerns, desire to put on weight or to lose weight, maintaining strength and fitness, and achieving regular periods were mentioned as facilitators. People who consulted the Shri Dharmasthala Manjunatheshwara University physiotherapy department were unaware of the condition and the role physical activity plays in PCOS management. Most of the time when the interviews were done, the participants were unaware of the condition impacting them. Education and counselling about the condition are very important. Participants who are unaware of their condition and the role of physical activity in PCOS should be educated and the barriers identified should be addressed. Meanwhile, the facilitators may be used to ensure proper participation in physical activity.

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ORCID iD

Manjushree Umamaheswar <http://orcid.org/0009-0007-4893-272X>

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