

Yoga for PCOS: A Holistic Approach to Improving Symptoms, Quality of Life, and Mental Well-Being

Review Article

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Abstract

Introduction: Polycystic Ovarian Syndrome (PCOS) is a common endocrine disorder affecting 11–13% of women globally during reproductive age. It is characterized by a complex interaction of genetic and environmental factors, leading to a wide array of symptoms, including menstrual irregularities, insulin resistance, obesity, infertility, and mental health challenges. Obesity, often exacerbated by lifestyle factors such as poor diet and inactivity, worsens PCOS outcomes. While medications provide short-term relief, they often have side effects, highlighting the need for non-pharmacological approaches. Yoga therapy, which combines physical, mental, and dietary practices, has emerged as a potential adjuvant therapy for managing PCOS symptoms. **Methods:** This study evaluated the feasibility and effectiveness of yoga as an adjuvant therapy for PCOS. Data were collected from 150 women diagnosed with PCOS based on the Rotterdam criteria, with 34 participants completing the 12-week online and offline yoga program. A structured questionnaire assessed patient satisfaction with the yoga intervention, focusing on symptom management, mental well-being, sleep, and quality of life. The yoga program included postures, breathing exercises, meditation, relaxation techniques, and dietary guidance. Statistical analysis was conducted to examine the relationship between yoga practice duration and improvement in PCOS-related outcomes. **Results:** Out of 43 respondents, 55.8% found the yoga program "very easy" to attend, and 30.2% reported significant improvement in PCOS symptoms. 55.8% experienced moderate mental well-being improvements, and 72.1% rated their post-intervention quality of life as "good" or "excellent." Yoga was found to be "very helpful" for managing PCOS by 48.8% of participants, and 62.8% found it an "acceptable" complementary therapy. The data showed statistically significant improvements in PCOS symptoms and quality of life, correlating with the duration of yoga practice. **Discussion:** The study demonstrated that yoga is a feasible and effective adjuvant therapy for PCOS. Although participants initially faced challenges incorporating yoga into their routines, they gradually adapted and reported positive outcomes in terms of physical, mental, and emotional well-being. Yoga provided benefits beyond medication, offering a holistic approach without adverse effects. These findings align with previous research, suggesting that yoga can help regulate menstrual cycles, manage weight, and improve mental health in women with PCOS. **Conclusion:** Yoga is a viable non-pharmacological approach for managing PCOS, with potential long-term benefits for physical and mental health. The integration of yoga with dietary guidance shows promise in improving both quality of life and symptom management. Future studies should explore objective clinical measurements to validate these results further and investigate the physiological and biochemical mechanisms underlying the effectiveness of yoga in PCOS.

Keywords: Polycystic Ovarian Syndrome (PCOS), Yoga therapy, Yoga based life style modification (YBLI), Lifestyle intervention, Mental well-being, Complementary therapies for PCOS.

Introduction

Polycystic Ovarian Syndrome (PCOS) is a prevalent endocrine disorder that affects a large number of women in their reproductive age, ranging from 11%

to 13% globally (1). This condition presents a complex interplay of genes and environment factors that causes a lot of reproductive health problems, leading to various health challenges and impacting a woman's quality of life (2). Women with PCOS experience various symptoms and commodities, such as missed menstrual periods, unwanted hair growth, not ovulating, infertility, acne, sleep disorders, psychosomatic disorders, insulin resistance, impaired glucose tolerance, and even issues like type 2 diabetes and obesity (3).

Specifically, obesity significantly contributes to the worsening of PCOS and can exacerbate irregular

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menstrual periods. These challenges intensify with the increasing age of women, complicating the process of implantation and making it harder to get pregnant (4). The issue is exacerbated, particularly for younger females, by lifestyle choices such as consuming unhealthy foods and being less physically active in their daily routines. Many choose fast food or snacks over healthier options. These habits can lead to hormonal imbalances that contribute to weight gain. This sedentary lifestyle and fast-food consumption contribute to hormonal imbalances and increase the risk of obesity (5).

Because of these concerns, doctors are looking into holistic approaches to PCOS management. While medications and surgeries provide immediate relief, they are not without limitations (6,7). This is where yoga becomes relevant. Recently, this ancient Indian practice has attracted interest and attention as a potential treatment for women with PCOS. Many studies showed that it can help with several symptoms associated related to these reproductive health issues (8-10).

While medication can relieve the PCOS symptoms quickly, it does not always provide long-term relief. Additionally, they can lead to undesirable side effects like lower abdominal pain, unexpected spotting, nausea, weight gain, back pain, and prolonged hypomenorrhea. Many women find that their menstrual cycles return to normal only while they're on medication (11-12); this highlights the importance of long-term and comprehensive management measures.

Yoga therapy, rooted in ancient practices, offers a promising non-pharmacological alternative to PCOS management. It's a non-drug option for treating PCOS. In ancient times, women stayed active doing chores without machines. Imagine drawing water from wells, grinding flour by hand, and washing clothes by hand—those tasks kept them healthy (13,14). Today's lifestyle is significantly different, as most people do not engage in this type of physical activity. By tapping into these old traditions, yoga offers a balanced way to manage PCOS and its worries—without the cost or side effects of medication (15). Understanding the need for affordable options, this study explores how well a yoga program works as part of managing PCOS (16). The program includes yoga postures, breathing exercises (pranayama), guided relaxation, meditation techniques, and dietary guidance. These practices aim to improve participant's physical, psychological, and emotional health with PCOS (17-20).

This study aims to determine the feasibility and comfort of incorporating yoga therapy into regular routines, as well as the effectiveness of a yoga intervention as an adjuvant therapy for polycystic ovarian syndrome (PCOS). This questionnaire analyzed the PCOS patient satisfaction with yoga intervention as an adjuvant treatment, covering aspects such as the feasibility of yoga practices, sleep patterns, mental health, and menstrual cycles.

Methodology

In this study, we evaluated the effectiveness and feasibility of a yoga intervention as an adjuvant therapy for managing polycystic ovarian syndrome.

Ethical Considerations

The study was conducted in compliance with ethical norms and approved by Ethical committee of Institute of Medical Sciences, Banaras Hindu University.

Participants and Recruitment

Data were collected from Department of Obstetrics & Gynaecology at the Institute of Medical Sciences, Banaras Hindu University. A total number 220 PCOS patients were diagnosed using Rotterdam criteria, out of which 150 patients enrolled in the study. Out of these, 43 patients regularly participated in the online and offline yoga program.

PCOS Diagnostic criteria

According to the 2003 Rotterdam meeting, the diagnosis of PCOS requires the presence of two of the following criteria:

- Oligo-ovulation;
- Clinical or biochemical hyperandrogenism;
- Ultrasound shows polycystic ovaries.

Assessment

We used a structured questionnaire to assess patients' satisfaction with the yoga intervention, covering topics such as feasibility to yoga postures, early difficulties adhering to a workout regimen, and effectiveness of yoga program in managing PCOS symptoms, as well as general satisfaction such as quality of life, physical and mental well-being.

Intervention

The yoga intervention program employed a holistic approach that encompassed²¹:

Yoga Postures: Specifically chosen because of their potential benefits in addressing PCOS symptoms.

Breathing Exercises: Techniques to regulate breath and promote relaxation.

Guided Relaxation: Practice to alleviate stress level and improve sleep disorder.

Meditation: Mindfulness yoga therapy to enhance emotional well-being.

Dietary Guidance: Advice on making healthy dietary plans to manage PCOS symptoms. A yoga program aimed to assess its effects on the physical and mental health of women with PCOS. Participants engaged in a variety of yoga styles, including Surya namaskar, Hatha and Vinyasa, alongside guided meditation sessions^{21,22}. The program had the following goals:

Enhancing Physical Fitness: Improving strength, flexibility, and overall well-being.

Promoting Physical Fitness: Improving stress levels and fostering emotional balance.

Encouraging Regular Practice: Developing a lifestyle habit to continue beyond the program's duration.

Inclusive criteria

Patients aged between 15 to 35 years with a confirmed diagnosis of PCOS, who satisfied the Rotterdam criteria and were willing to participate in the yoga program.

Exclusion criteria

Women suffering from ovary tumours, ovarian cancer, or ovarian cyst excision surgery or any medical condition that could interfere with the yoga practices or the assessment of PCOS-related outcomes, such as a history of cancer or other serious medical disorders.

Statistical Data Analysis:

Table 1

1. Did you find the yoga intervention program easy to attend regularly?		
	Frequency	Percent
Very Easy	24	55.8
Somewhat Easy	12	27.9
Neutral	2	4.7
Somewhat Difficult	5	11.6
Total	43	100.0

Table 2

2. Did you experience any physical improvements in your PCOS symptoms after participating in the yoga sessions?		
	Frequency	Percent
Significant improvement	13	30.2
Moderate improvement	16	37.2
Slight improvement	12	27.9
No improvement	2	4.7
Total	43	100.0

Table 3

3. Did you notice any changes in your mental well-being (e.g., reduced stress or improved mood) as a result of practicing yoga?		
	Frequency	Percent
Significant improvement	13	30.2
Moderate improvement	24	55.8
Neutral	6	14.0
Total	43	100.0

Table 4

4. How would you rate your overall quality of life before participating in the yoga intervention?		
	Frequency	Percent
Good	1	2.3
Fair	6	14.0
Poor	34	79.1
Very Poor	2	4.7
Total	43	100.0

Table 5

5. How would you rate your overall quality of life after participating in the yoga intervention?		
	Frequency	Percent
Excellent	7	16.3
Good	31	72.1
Fair	5	11.6
Total	43	100.0

Table 6

6. To what extent did yoga interventions help you manage your PCOS symptoms and overall well-being?		
	Frequency	Percent
Extremely helpful	4	9.3
Very helpful	21	48.8
Somewhat helpful	15	34.9
Not very helpful	2	4.7
Not at all helpful	1	2.3
Total	43	100.0

Table 7

7. Did you find the yoga intervention program to be an acceptable complementary therapy for PCOS management?		
	Frequency	Percent
Highly acceptable	8	18.6
Acceptable	27	62.8
Neutral	5	11.6
Unacceptable	3	7.0
Total	43	100.0

Out of the 43 participants, In (Table 1) , 55.8% found the yoga intervention program “very easy” to attend, while 27.9% found it “somewhat easy”. Regarding the effectiveness of yoga on PCOS symptoms, 30.2% reported “significant improvement” and 37.2% noted “moderate improvement” (Table 2). Additionally, 55.8% experienced “moderate improvement” in mental well-being, and 30.2% saw “significant improvement”(Table 3).

Before the yoga intervention, 79.1% rated their quality of life as “poor”, with only 2.3% reporting it as “good” (Table 4). Post- intervention, 72.1% described their quality of life as “good”, and 16.3% as “excellent” (Table 5). In terms of managing PCOS symptoms, 48.8% found yoga “very helpful”, while 34.9% found it “somewhat helpful” (Table 6). Lastly, 62.8% found the yoga intervention “acceptable”, and 18.6% rated it as “highly acceptable” as a complementary therapy for managing PCOS (Table 7).

The correlation between the duration of yoga practice and improvement in PCOS symptoms, mental well-being, and quality of life was statistically significant, for all tables. This emphasises the positive impact of yoga over time.

Figure 1

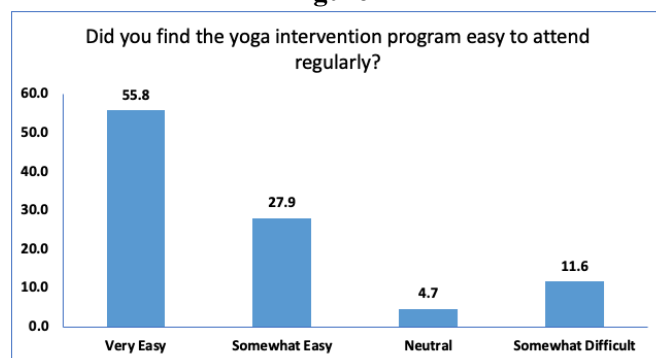


Figure 2

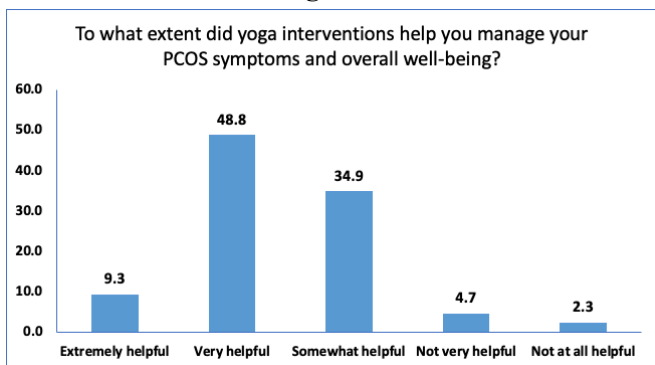


Figure 3

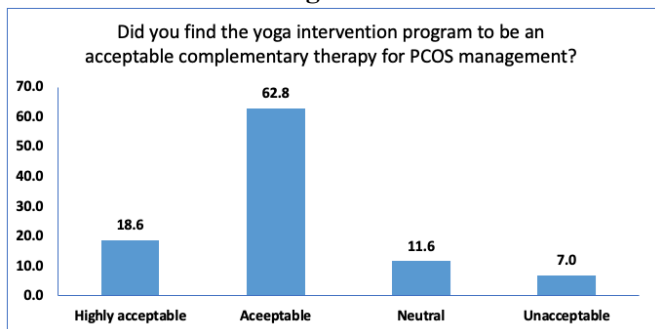
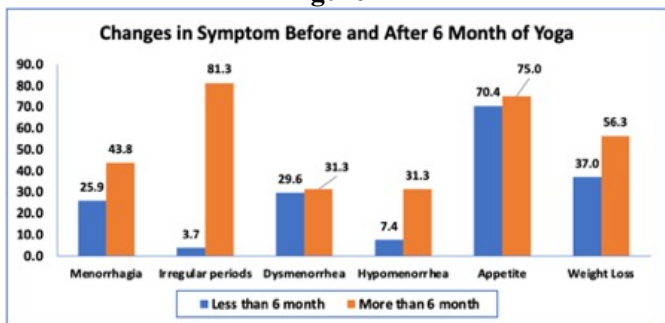


Figure 4



In Figure 1, illustrate that 55.8% of participants found the program “very easy” to attend, while 27.9% found it “somewhat easy.” And in Figure 2 shows the impact of yoga on PCOS symptoms and well-being, with 48.8% rating it “very helpful” and 34.9% as “somewhat helpful”. Figure 3 reveals that 62.8% considered yoga an “acceptable” complementary therapy for PCOS management, Figure 4 shows changes in symptoms over six months, showing significant improvements, with p-values <0.05, indicating statistical significance in symptoms reduction and quality of life enhancement.

Discussion

Feasibility and Comfort of Yoga as a Therapeutic Practice: Overcoming Initial Challenges for Long-Term Wellness

Patients who take part in the yoga program initially experience difficulties to incorporate yoga into their everyday routines. However, as they progressed, they reported feeling more comfortable and feasible with yoga postures. The yoga program to be accessible and adaptable, allowing patients to gradually ease into the practice without any physical demands.

Through consistent encouragement and support, participants mentioned that the yoga sessions were not tough but rather contributed to comfort over time. This determines yoga is a feasible and comfortable as an adjuvant treatment. Despite initial discomfort, patients adopted yoga easily, reporting that yoga session was not only feasible but also beneficial for long-term wellness. The only experience minor discomfort, but soon they develop soon comfort and confidence in their yoga practice.

The effectiveness of a yoga intervention in managing PCOS

The purpose of this study evaluates a feasibility and comfort to including yoga therapy into regular routines as well as assessment of the effectiveness of a yoga intervention as an adjuvant therapy for Polycystic Ovarian Syndrome (PCOS). Based on a patient’s feedback, the results deliver valuable information about the feasibility and potential benefits of incorporating yoga into regular PCOS therapy. However, there are limited active treatment options for PCOS, leading many women seek complementary therapies to manage their symptoms. The purpose of this study was to investigate the effectiveness of yoga training online, covering aspects such as the feasibility of yoga practices, sleep patterns, mental health, and menstrual cycles, as an additional PCOS treatment over a 12-week period.

The study results showed that yoga intervention served as an effective adjuvant therapy for PCOS management over a duration of 12-weeks. Participants reported improved menstrual pain control and better weight management as a result of incorporating yoga into regular treatment for PCOS. In addition, the online yoga classes made the intervention easy and feasible to women who may have difficulty attending in-person sessions due to transportation or scheduling morning time.

According to the outcomes, yoga is effective for managing PCOS in a similar way to previous studies. PCOS women who practice yoga have shown improvements in their androgen levels, metabolic markers, and psychological distress. In addition, yoga is a cost-effective, self-directed therapy that can easily be integrated into everyday life, thereby serving as a valuable addition to standard medical care.

Yoga as an Adjuvant Therapy for Managing PCOS: Improving Quality of Life

Since PCOS and its related comorbidity are so common, there is a need for long-term, cost effective treatment options. Medical approaches are beneficial, but they don’t provide long-term relief and may have adverse side effects like weight gain, back discomfort, leg pain, prolonged hypomenorrhea, and unusual spotting. These limitations show how significant it is to investigate complementary therapies like yoga.

In this study found that participants initially struggled to integrate yoga practice into their daily routines, but gradually became more feasible and comfortable with it. Despite early challenges, some

participants experience difficulty incorporating the yoga practices into their busy lives but gradually became more at ease and, with consistent encouragement and support, enabled women dealing with PCOS to incorporate yoga into their everyday routines.

In addition to be observed enhancement in both physical and mental well-being, this led to a significant improvement in their overall quality of life. This highlights the yoga therapy has the potential benefit of being an adjuvant approach for managing PCOS symptoms and promoting holistic well-being.

Conclusion

This study shows significant results for the potential benefits of adding a yoga program as a part of treating Polycystic Ovarian Syndrome (PCOS). Bringing about this lifestyle modification was initially a challenge. Despite initial challenges, participants successfully incorporated yoga into their daily lifestyle routines. It demonstrates that with adequate support from coaches or friends, women with PCOS can overcome barriers to consistent practice. The positive responses we received via our online questionnaire regarding the feasibility of online yoga delivery suggest that this approach can effectively engage participants and promote ongoing adherence.

The integration of dietary advice with yoga practices enhances a comprehensive management strategy that addresses both the psychological and physical aspects of PCOS (23-26). Participants reported significant improvements in their weight management alongside regularity in menstrual cycles, which suggests that yoga may help PCOS-affected women psychologically and physiologically (27-30).

However, the study's dependence on patient satisfaction underscores the necessity for additional research using objective clinical measurements to validate these preliminary results. Future research should investigate the physiological and biochemical impacts of yoga on PCOS to better understand its mechanisms and effectiveness. Overall, this study suggests that the feasibility of yoga intervention in a regular routine is comfortable, and particularly yoga combined with dietary changes has potential as a long-term, non-pharmacological approach for managing PCOS.

References

1. Stener-Victorin, E., Teede, H., Norman, R. J., Legro, R., Goodarzi, M. O., Dokras, A., ... & Piltonen, T. T. (2024). Polycystic ovary syndrome. *Nature Reviews Disease Primers*, 10(1), 27.
2. Kicińska, A. M., Maksym, R. B., Zabielska-Kaczorowska, M. A., Stachowska, A., & Babińska, A. (2023). Immunological and metabolic causes of infertility in polycystic ovary syndrome. *Biomedicines*, 11(6), 1567.
3. Boldis, B. V., Grünberger, I., Cederström, A., Björk, J., Nilsson, A., & Helgertz, J. (2024). Comorbidities in women with polycystic ovary syndrome: a sibling study. *BMC Women's Health*, 24(1), 221.
4. Joham, A. E., Palomba, S., & Hart, R. (2016, March). Polycystic ovary syndrome, obesity, and pregnancy. In *Seminars in reproductive medicine* (Vol. 34, No. 02, pp. 093-101). Thieme Medical Publishers.
5. Sedighi, S., Akbari, S. A. A., Afrakhteh, M., Esteki, T., Majd, H. A., & Mahmoodi, Z. (2015). Comparison of lifestyle in women with polycystic ovary syndrome and healthy women. *Global journal of health science*, 7(1), 228.
6. Stankiewicz, M., & Norman, R. (2006). Diagnosis and management of polycystic ovary syndrome: a practical guide. *Drugs*, 66, 903-912.
7. Escobar-Morreale, H. F. (2018). Polycystic ovary syndrome: definition, aetiology, diagnosis and treatment. *Nature Reviews Endocrinology*, 14(5), 270-284.
8. Verma, A., Kumar, S., Dei, L., & Dhiman, K. (2015). Management of PCOS: a psychosomatic disorder by yoga practice. *Int J Innov Res Devel*, 4(1), 216-219.
9. Singh, D., Kishore Chaturvedi, K., Singh, S., & Kandan, S. L. (2022). Effect of Yoga on Management of Polycystic Ovarian Syndrome (PCOS): A Systematic Review. *Journal of Complementary and Alternative Medical Research*, 20(4), 1-18.
10. Mohseni, M., Eghbali, M., Bahrami, H., Dastaran, F., & Amini, L. (2021). Yoga effects on anthropometric indices and polycystic ovary syndrome symptoms in women undergoing infertility treatment: a randomized controlled clinical trial. *Evidence-Based Complementary and Alternative Medicine*, 2021(1), 5564824.
11. Walker, K., Decherney, A. H., & Saunders, R. (2021). Menstrual dysfunction in PCOS. *Clinical Obstetrics and Gynecology*, 64(1), 119-125.
12. Rasgon, N. L., Altshuler, L. L., Fairbanks, L., Elman, S., Bitran, J., Labarca, R., ... & Mintz, J. (2005). Reproductive function and risk for PCOS in women treated for bipolar disorder. *Bipolar disorders*, 7(3), 246-259.
13. Pathak, G., & Nichter, M. (2015). Polycystic ovary syndrome in globalizing India: An ecosocial perspective on an emerging lifestyle disease. *Social science & medicine*, 146, 21-28.
14. Sharma, S., & Mishra, A. J. (2018). Tabooed disease in alienated bodies: A study of women suffering from polycystic ovary syndrome (PCOS). *Clinical Epidemiology and Global Health*, 6(3), 130-136.
15. Verma, A., Kumar, S., Dei, L., & Dhiman, K. (2015). Management of PCOS: a psychosomatic disorder by yoga practice. *Int J Innov Res Devel*, 4(1), 216-219.
16. Thakur, D., Singh, S. S., & Tripathi, M. (2021). Effect of yoga on polycystic ovarian syndrome: A systematic review. *Journal of Bodywork and Movement Therapies*, 27, 281-286.

17. Verma, A., Upadhyay, V., & Saxena, V. (2023). Effect of yoga therapy on health outcomes in women with polycystic ovary syndrome: a systematic review and meta-analysis. *American Journal of Lifestyle Medicine*, 17(1), 73-92.
18. Nidhi, R., Padmalatha, V., Nagarathna, R., & Amritanshu, R. (2013). Effect of yoga program on quality of life in adolescent polycystic ovarian syndrome: a randomized control trial. *Applied Research in Quality of Life*, 8, 373-383.
19. Thakur, D., Singh, S. S., & Tripathi, M. (2021). Effect of yoga on polycystic ovarian syndrome: A systematic review. *Journal of Bodywork and Movement Therapies*, 27, 281-286.
20. Nidhi, R., Padmalatha, V., Nagarathna, R., & Amritanshu, R. (2013). Effects of a holistic yoga program on endocrine parameters in adolescents with polycystic ovarian syndrome: a randomized controlled trial. *The Journal of Alternative and Complementary Medicine*, 19(2), 153-160.
21. Nidhi, R., Padmalatha, V., Nagarathna, R., & Amritanshu, R. (2013). Effects of a holistic yoga program on endocrine parameters in adolescents with polycystic ovarian syndrome: a randomized controlled trial. *The Journal of Alternative and Complementary Medicine*, 19(2), 153-160.
22. Patel, V., Menezes, H., Menezes, C., Bouwer, S., Bostick-Smith, C. A., & Speelman, D. L. (2020). Regular mindful yoga practice as a method to improve androgen levels in women with polycystic ovary syndrome: a randomized, controlled trial. *Journal of Osteopathic Medicine*, 120(5), 323-335.
23. Shahid, R., Mahnoor, Awan, K. A., Iqbal, M. J., Munir, H., & Saeed, I. (2022). Diet and lifestyle modifications for effective management of polycystic ovarian syndrome (PCOS). *Journal of food biochemistry*, 46(7), e14117.
24. Farshchi, H., Rane, A., Love, A., & Kennedy, R. L. (2007). Diet and nutrition in polycystic ovary syndrome (PCOS): pointers for nutritional management. *Journal of obstetrics and gynaecology*, 27(8), 762-773.
25. Moran, L. J., Brown, W. J., McNaughton, S. A., Joham, A. E., & Teede, H. J. (2017). Weight management practices associated with PCOS and their relationships with diet and physical activity. *Human Reproduction*, 32(3), 669-678.
26. Barrea, L., Arnone, A., Annunziata, G., Muscogiuri, G., Laudisio, D., Salzano, C., ... & Savastano, S. (2019). Adherence to the mediterranean diet, dietary patterns and body composition in women with polycystic ovary syndrome (PCOS). *Nutrients*, 11(10), 2278.
27. Verma, A., Kumar, S., Dei, L., & Dhiman, K. (2015). Management of PCOS: a psychosomatic disorder by yoga practice. *Int J Innov Res Devel*, 4(1), 216-219.
28. Cowan, S., Lim, S., Alycia, C., Pirotta, S., Thomson, R., Gibson-Helm, M., ... & Moran, L. (2023). Lifestyle management in polycystic ovary syndrome—beyond diet and physical activity. *BMC endocrine disorders*, 23(1), 14.
29. Thakur, D., Singh, S. S., & Tripathi, M. (2021). Effect of yoga on polycystic ovarian syndrome: A systematic review. *Journal of Bodywork and Movement Therapies*, 27, 281-286.
30. Verma, A., Upadhyay, V., & Saxena, V. (2023). Effect of yoga therapy on health outcomes in women with polycystic ovary syndrome: a systematic review and meta-analysis. *American Journal of Lifestyle Medicine*, 17(1), 73-92.
