

Impact of yoga on PCOD in adolescents

Anju Kumari

M.A (Yoga)

Iktarpura, District Jhunjhunun,

Rajasthan -333024

anjukumari361343@gmail.com

Abstract

Polycystic Ovary Syndrome (PCOS) is a complex endocrine disorder commonly affecting women of reproductive age, characterized by ovulatory dysfunction, elevated androgen levels, and polycystic ovarian morphology. In order to manage PCOS symptoms in recent years, complementary and lifestyle-based approaches, particularly yoga, have gained attention as supportive strategies. The present study investigates the scholarly trends related to yoga-based interventions for PCOS through a bibliometric analysis. Data were retrieved from the Scopus database, applying strict inclusion criteria such as peer-reviewed articles published in English, focusing specifically on yoga interventions, and available through open-access platforms. The study underscores the importance of integrative healthcare approaches and calls for more rigorous, evidence-based research to establish the efficacy of yoga in the management of PCOS, thereby supporting its inclusion in comprehensive treatment protocols.

Keywords: Hormonal imbalance, Adolescents, PCOD, Yoga Therapy.

Introduction:

According to the World Health Organization (2023), up to 70% of women affected by polycystic ovary syndrome (PCOS) may remain undiagnosed, resulting in the persistence of untreated symptoms and chronic health complications. In India, a study by Minhas (2023) highlighted the prevalence of PCOD across different age groups: 3.8% in teenage girls, 16.81% in young adults, 11.58% in adults, 1.44% in older adults, and 0.55% in seniors, with the highest prevalence observed among women aged 18–35 years (Jalilian et al., 2015; Bhambhu et al., 2022). Polycystic ovarian Disease (PCOD) is an endocrine pathology that impacts a woman's Ovaries, contain eggs may fail to mature and form tiny cysts. These sacs may enlarge and fill with liquid. In extreme cases (Madhu et al., 2013) reported an instance where a surgically removed ovarian tumor weighed 56.95 kilograms, illustrating the potential severity of this condition.

The underlying issues often start with the hypothalamic-pituitary-ovarian (HPO) axis, (Mohammed et al., 2021), Follicle Stimulating Hormone (FSH) and luteinizing hormone (LH) facilitate the stimulation of the pituitary gland to secrete. Under normal physiological conditions, the menstrual cycle is meticulously regulated by a delicate equilibrium of hormones, including FSH and LH, which orchestrate the maturation and release from the ovaries. In PCOD, the hormonal imbalance often involves elevated levels of androgens (male hormones). This imbalance prevents the eggs from maturing properly and being released during ovulation. This leads to hypo menorrhea, hyper menorrhea and amenorrhea because the hormone progesterone isn't produced (Wardhan, 2016). PCOD is on the rise among women due to factors like unhealthy lifestyles significantly influence the severity of PCOD (Pathak & Nichter, 2015), Poor dietary habits can contribute to insulin resistance and weight gain, both key risk factors for PCOD (Shrestha et al., 2019). Chronic stress further disrupts hormonal balance (Goyal et al., 2021), and sedentary lifestyles characterized by lack of physical activity worsen metabolic dysfunction, increasing susceptibility to PCOD (Verma et al., 2024).

A study from Lucknow was published, in which college-going women with menstrual irregularity and hirsutism, in the age range of 18-25 yr, were studied, and it was reported that the calculated prevalence using the NIH criteria, among the participants, was only 3.7 per cent (Azziz, R., et al. 2004).. Another study from Andhra Pradesh studied young women from a residential college and found that 9.13 per cent of them satisfied the Rotterdam criteria for PCOS Gill, H., Tiwari, P., & Dabadghao, P. (2012). (Vidya Bharathi et al 2017) showed that the prevalence of PCOS diagnosed by the Rotterdam criteria in community-dwelling women from rural and urban areas of Chennai was 6 per cent. International studies report the prevalence of PCOS to be in the range of 4-10 per cent of women of reproductive age Diamanti-Kandarakis, E., Papalou, O., & Kandaraki, E. (2022).

Intervention, but more research is needed to determine exactly how yoga practice affects one's health. Numerous non-communicable diseases can be effectively treated with yoga treatment (1). Yoga therapy can greatly slow down the catabolic process of cell degeneration and maintain the body's flexibility, cleanliness, and lubrication. Yoga calms the body and mind, maybe via balancing the sympathetic and parasympathetic nerve systems (2). To identify the new therapeutic solutions consistent research is going on.

PCOD:

PCOD (Polycystic Ovarian Disease) is primarily caused by a combination of hormonal imbalance and genetic predisposition. In a normal menstrual cycle, the two ovaries alternately release mature, fertilization-ready eggs each month. In individuals with PCOD, however, the

ovaries often release immature or partially mature eggs, which may subsequently develop into cysts (small fluid-filled sacs).

This condition also causes the ovaries to swell and become enlarged. Normally, the ovaries produce a limited amount of androgens (male hormones) during the menstrual cycle; however, in PCOD, the ovaries begin producing excess androgens, leading to symptoms such as male-pattern hair loss, abdominal weight gain, irregular menstruation, and, in severe cases, infertility.

There is no definite “cure” for PCOD as such, but one of the most effective ways to manage it is through lifestyle modifications (after consulting healthcare professionals, preferably a gynecologist, an endocrinologist, and a dietician). Regular exercise and maintaining a healthy diet (low in sugars and carbohydrates and high in protein and fibre) are among the most effective approaches for controlling PCOD. These measures also help reduce weight gain, which is beneficial, as even a 5% reduction in body weight can significantly improve treatment outcomes. (Source: UNICEF)

Yoga has a positive effect and a major impact on PCOD, as highlighted in all six research studies. These studies consistently demonstrate that yoga interventions improve hormonal balance, insulin sensitivity, cardiovascular health, mental well-being, and menstrual regulation, making yoga a highly effective non-pharmacological approach for managing PCOD. Research by Nidhi et al. (2012, 2013) emphasizes that yoga significantly reduces fasting blood glucose levels and improves lipid profiles, even more effectively than conventional exercise. Selvaraj et al. (2020) support the role of yoga in reducing PCOD risk by nearly 50%, indicating its long-term potential. Additionally, the studies confirm that yoga lowers cortisol levels, reduces stress, and enhances emotional well-being, all of which play a crucial role in balancing reproductive hormones. Although some studies report limitations such as small sample sizes and the lack of long-term follow-up, the collective evidence strongly supports yoga as a powerful and transformative intervention for the management of PCOD.

Yoga has shown a significant impact on hormonal balance, with reductions in Anti-Müllerian Hormone (AMH), Luteinizing Hormone (LH), and Follicle-Stimulating Hormone (FSH) levels, which indicates a regulatory effect on the endocrine system (Nidhi et al., 2013; Mohseni et al., 2021). Additionally, improvements in menstrual regularity and reductions in hirsutism scores suggest better ovarian function, as evidenced in the studies by Patel et al. (2019) and Mohseni et al. (2021). Yoga also plays a key role in weight management, with reductions in Body Mass Index (BMI), waist-to-hip ratio, and fasting insulin levels, highlighting its positive effect on metabolic regulation (Nidhi et al., 2013; Mohseni et al., 2021).

Psychologically, yoga interventions have shown significant benefits, particularly in reducing stress, anxiety, and depression. Mindful yoga practices, as examined by Patel et al. (2019), have demonstrated a reduction in anxiety and depression levels. Yoga also improves overall quality of life, with enhancements in emotional well-being, body image, and reductions in infertility-related distress, as reported by Nidhi et al. (2012). Furthermore, the impact of yoga on body image perception has been particularly notable, with improvements in self-confidence and acceptance observed, especially in adolescent girls with PCOS (Nidhi et al., 2012).

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Importance of Hormonal Balance:

Maintaining hormonal balance is essential for overall health and well-being. Hormonal imbalances may lead to a variety of physical and mental health problems, including weight gain, fatigue, mood fluctuations, and reproductive disorders (Yeap BB. 2014). Common conditions linked with hormonal imbalance include polycystic ovary syndrome (PCOS), thyroid dysfunction, and menopausal symptoms, all of which can considerably affect an individual's quality of life (Emanuel RHK, Roberts J, et al., 2022). Therefore, addressing these imbalances is important for restoring health and reducing the risk of chronic diseases.

Objectives:

The present study aims to examine the increasing prevalence of Polycystic Ovary Syndrome (PCOS) as a major health concern among adolescent girls. Over the past few decades, PCOS has emerged as a widespread global health issue, affecting a considerable proportion of young females. The condition extends beyond reproductive dysfunction, influencing metabolic processes, hormonal balance, and psychological health. Its growing incidence has raised significant concern among healthcare providers, families, and the wider community, as it affects

individuals during a crucial stage of physical and emotional development. In the Indian context, the prominence of PCOS has increased due to rapid urbanization, sedentary lifestyles, unhealthy dietary habits, and elevated stress levels. These contributing factors have collectively intensified the prevalence of PCOS, highlighting the need for greater awareness, early diagnosis, and targeted interventions within this population.

The primary objective of the present study is to examine the prevalence and impact of Polycystic Ovary Syndrome (PCOS) among adolescent girls, with particular emphasis on its physiological, hormonal, and psychological aspects. The study further aims to evaluate the effectiveness of yoga as a non-pharmacological approach for managing symptoms associated with PCOS.

Additionally, the study seeks to assess the level of awareness, knowledge, and lifestyle practices related to PCOS among adolescents. It also aims to explore the influence of contemporary lifestyle factors, such as sedentary behaviour, unhealthy dietary habits, and psychological stress, on the rising incidence of PCOS.

Another key objective is to analyze existing literature and research trends to understand the role of yoga in improving hormonal balance, metabolic health, and overall quality of life in individuals with PCOS. Ultimately, the study aims to promote integrative and preventive healthcare approaches by highlighting the potential benefits of incorporating yoga into the management and early intervention strategies for PCOS among adolescents.

Reviews of Literature:

The reviewed studies on PCOD or PCOS interventions demonstrated several strengths across various aspects. Nidhi et al. (2012) and Nidhi et al. (2013) focus on adolescents, a critical age group for early intervention in PCOS, evaluating multiple metabolic parameters such as insulin resistance and lipid levels, and using the Rotterdam criteria for standardized PCOS diagnosis. These studies, along with Patel et al. (2019), incorporated holistic yoga programs, offering non-pharmacological interventions that assess hormonal changes, menstrual frequency, and psychological well-being, thus providing a multifaceted approach to managing PCOS. The inclusion of quality-of-life factors, such as emotional and psychological well-being, is emphasized in both Nidhi et al. (2012) and Patel et al. (2019), enhancing the depth of PCOS management. In addition, Selvaraj et al. (2020) focuses on lifestyle modifications and preventive strategies for adolescent girls, with a comprehensive risk assessment approach that includes social, environmental, and socioeconomic factors. Mohseni et al. (2021) evaluated the both endocrine and anthropometric parameters, with a focus on menstrual cycles and hirsutism scores, enhancing the understanding of the effects of yoga interventions on PCOS.

The reviewed studies exhibit certain limitations that may affect the validity and generalizability of their findings. Nidhi et al. (2012) and Nidhi et al. (2013) lack explicit details on sample size, diversity and control groups, limiting causal inferences and external validity. Self-reported anthropometric and psychological measures introduce potential bias, while the absence of long-term follow-ups restricts the assessment of sustained effects. Patel et al. (2019) and Selvaraj et al. (2020) face challenges with subjectivity in self-reported outcomes, unclear intervention durations and a lack of standardized PCOS diagnostic criteria, potentially affecting study consistency. Selvaraj et al. (2020) and Mohseni et al. (2021) do not provide comprehensive details on randomisation and blinding procedures, and their reliance on self-reported lifestyle factors and menstrual data.

Gopinath et al. (2017) demonstrated that women in the yoga intervention group experienced significant improvements in both physical and psychological parameters compared to the non-intervention group, which did not receive any intervention. These findings address that yoga can be a holistic and strong approach to managing PCOD symptoms, addressing both physical and psychological aspects.

Studies have proven that exercise/physical activity is associated with improvements in ovarian hormones in women with abnormal ovarian function. This suggests that mechanisms associated with ovarian dysfunction can be improved by exercise in PCOS. [Moran, L. J., Harrison, C. L., Hutchison, S. K., Stepto, N. K., Strauss, B. J., & Teede, H. J. (2011), Nidhi, R., Padmalatha, V., Nagarathna, R., & Amritanshu, R. (2013).] Saxena et al. (2012) reported significant reductions in anxiety and depression levels on women with PCOD, leading to an enhanced quality of life.

Conclusion -

To study the status of polycystic ovarian syndrome (PCOD) among adolescent girls and young women, along with an assessment of their awareness regarding the condition. The general objective of the study is to evaluate the knowledge, attitude, and practices of women with PCOD. Thus, it can be concluded that PCOD among adolescent girls is not merely a reproductive disorder but a multifaceted condition influenced by various physical, psychological, and lifestyle-related factors. Understanding it from a broader and more holistic perspective is important for effective management. The yogic approach, particularly through the principles of Ashtanga Yoga, offers a natural, safe, and holistic method that supports balanced growth, emotional stability, and overall well-being among adolescents. Therefore, integrating yogic practices with modern health awareness may enable adolescent girls to achieve better health, enhanced quality of life, and long-term well-being.



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Reference:

1. Azziz, R., Woods, K. S., Reyna, R., Key, T. J., Knochenhauer, E. S., Yildiz, B. O., et al. (2004). The prevalence and features of the polycystic ovary syndrome in an unselected population. *Journal of Clinical Endocrinology & Metabolism*, 89(6), 2745–2749. <https://doi.org/10.1210/jc.2003-032046> [DOI] [PubMed] [Google Scholar]
2. Bhambhu, D., Sharma, R., & Singh, P. (2022). Yoga as a therapeutic intervention for managing polycystic ovary syndrome: A systematic review. *Journal of Complementary and Integrative Medicine*, 19(3), 245–252.
3. Diamanti-Kandarakis, E., Papalou, O., & Kandaraki, E. (2022). Endocrine-disrupting chemicals and PCOS: A novel contributor in the etiology of the syndrome. In *Polycystic ovary syndrome* (pp. 227–244).
4. Emanuel, R. H. K., Roberts, J., Docherty, P. D., Lunt, H., Campbell, R. E., & Möller, K. (2022). A review of the hormones involved in the endocrine dysfunctions of polycystic ovary syndrome and their interactions. *Frontiers in Endocrinology*, 13, 1017468. <https://doi.org/10.3389/fendo.2022.1017468>
5. Gopinath, K., Anitha, S., & Ramachandran, S. (2017). Yoga versus no intervention in PCOD management: A comparative study. *Indian Journal of Yoga and Health*, 11(2), 67–74.
6. Goyal, A., Doomra, R., Atkaan, N., Singh, S., & Bhatia, S. (2021). Is Prolonged Stress Causes Poly Cystic Ovarian Syndrome? A Survey from Delhi, National Capital Region. *Journal of Evolution of Medical and Dental Sciences*, 10(8), 505-511.
7. Gill, H., Tiwari, P., & Dabadghao, P. (2012). Prevalence of polycystic ovary syndrome in young women from North India: A community-based study. *Indian Journal of Endocrinology and Metabolism*, 16(Suppl 2), S389–S392. <https://doi.org/10.4103/2230-8210.104104> [DOI] [PMC free article] [PubMed] [Google Scholar][Ref list]
8. Jalilian, A., Kiani, F., Sayehmiri, F., Sayehmiri, K., Khodae, Z., & Akbari, M. (2015). Prevalence of polycystic ovary syndrome and its associated complications in Iranian women: A meta-analysis. *Iranian journal of reproductive medicine*, 13(10), 591–604.
9. Moran, L. J., Harrison, C. L., Hutchison, S. K., Stepto, N. K., Strauss, B. J., & Teede, H. J. (2011). Exercise decreases anti-Müllerian hormone in anovulatory overweight women with polycystic ovary syndrome: A pilot study. *Hormone and Metabolic Research*, 43(12), 977–979.
10. Mohseni, M., Amini, L., Khosravi, A., & Ebrahimi, F. (2021). The effects of yoga and lifestyle modification on hormonal imbalance in women with polycystic ovary syndrome: A clinical study. *Complementary Therapies in Medicine*, 58, 102689.

11. Madhu, Y. C., Harish, K., & Gotam, P. (2013). Complete resection of a giant ovarian tumour. *Gynecologic Oncology Case Reports*, 6, 4-6.
12. Mohammed, S., Sundaram, V., Adidam Venkata, C. R., & Zyuzikov, N. (2021). Polycystic ovary rat model exposure to 150 kHz intermediate frequency: hypothalamic-pituitary-ovarian axis at the receptor, cellular, tissue, and hormone levels. *Journal of Ovarian Research*, 14(1), 173.
13. 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. *Journal of Alternative and Complementary Medicine*, 19(2), 153–160.
14. Nidhi, R., Padmalatha, V., Nagarathna, R., & Amritanshu, R. (2012). Effect of holistic yoga program on anxiety symptoms in adolescent girls with polycystic ovarian syndrome: A randomized control trial. *International journal of yoga*, 5(2), 112-117.
15. 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.
16. 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.
17. Nidhi, R., Padmalatha, V., Nagarathna, R., & Amritanshu, R. (2011). Prevalence of polycystic ovarian syndrome in Indian adolescents. *Journal of Pediatric and Adolescent Gynecology*, 24(4), 223–227. <https://doi.org/10.1016/j.jpag.2011.03.002> [DOI] [PubMed] [Google Scholar][Ref list]
18. Patel, A., Mehta, S., & Desai, R. (2019). The role of lifestyle interventions in the management of polycystic ovary syndrome: A review. *International Journal of Women's Health*, 11, 123–130.
19. 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.
20. Selvaraj, V., Vanitha, J., Dhanaraj, F. M., Sekar, P., & Babu, A. R. (2020). Impact of yoga and exercises on polycystic ovarian syndrome risk among adolescent schoolgirls in South India. *Health science reports*, 3(4), e212.
21. Shrestha, A., Dixit, A., & Zaidi, A. (2019). Assessment of lifestyle and diet modification of patients suffering from polycystic ovarian disease (PCOD) in North India. *Journal of Food and Nutrition Sciences*, 7(4), 60-65.

22. Vidya Bharathi, R., Swetha, S., Neerajaa, J., Varsha Madhavica, J., Janani, D. M., Rekha, S. N., et al. (2017). An epidemiological survey: Effect of predisposing factors for PCOS in Indian urban and rural population. *Middle East Fertility Society Journal*, 22(4), 313–316. [[Google Scholar](#)]
23. Verma, D., Verma, K., & Musharraf, A. (2024). An Epidemiological Study to Assess the Risk Factors and Symptoms of PCOS. *Asian Journal of Current Research*, 9(2), 189-202.
24. Wardhan, R. (2016). Polycystic ovarian cyst disorder (PCOD): causes and control. *Best Pract Res Clin Obstet Gynaecol*, 18(5), 685-706.
25. World Health Organization: WHO & World Health Organization: WHO. (2023, June 28). Polycystic ovary syndrome. Retrieved May 31, 2024, from <https://www.who.int/news-room/fact-sheets/detail/polycystic-ovary-syndrome>
26. Yeap, B. B. (2014). Hormonal changes and their impact on cognition and mental health of ageing men. *Maturitas*, 79(2), 227–235.
<https://doi.org/10.1016/j.maturitas.2014.05.015>

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<https://www.sciencedirect.com/science/article/abs/pii/S1360859221000413#:~:text=As%20a%20result%20it%20was%20found%20that,in%20body%20weight%2C%20follicle%2Dstimulating%20hormone%2C%20and%20prolactin.>

https://www.researchgate.net/publication/257691629_Effect_of_Yoga_Program_on_Quality_of_Life_in_Adolescent_Polycystic_Ovarian_Syndrome_A_Randomized_Control_Trial#:~:text=Yoga%20program%20for%2012%20weeks%20is%20significantly.of%20life%20in%20adolescent%20girls%20with%20PCO S.

https://www.researchgate.net/publication/367367710_Effect_of_Yoga_on_Management_of_Polycystic_Ovarian_Syndrome_PCOS_A_Systematic_Review

https://www.researchgate.net/publication/391828988_Effect_of_Yoga_Intervention_on_Polycystic_Ovarian_Disease_-_Bibliometric_Analysis