

**THE EFFECT OF SURYANAMASKAR AND LOVING  
KINDNESS MEDITATION IN DEALING WITH SOCIAL  
PHYSIQUE ANXIETY AND BODY DISSATISFACTION IN  
WOMEN WITH POLYCYSTIC OVARIAN SYNDROME**

Thesis Submitted for the Award of the Degree of

**DOCTOR OF PHILOSOPHY**

**in**

**Psychology**

**By**

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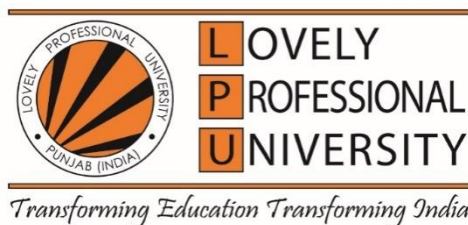
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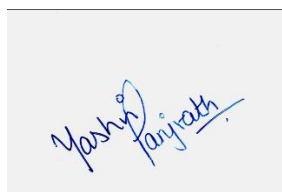
**School of Creative and Liberal Arts**



**LOVELY PROFESSIONAL UNIVERSITY, PUNJAB  
2025**

## **DECLARATION**

I, hereby declared that the presented work in the thesis entitled “The Effect of SuryaNamaskar and Loving Kindness Meditation in Dealing with Social Physique Anxiety and Body Dissatisfaction in Women with Polycystic Ovarian Syndrome” in fulfilment of degree of **Doctor of Philosophy (Ph.D.)** is outcome of research work carried out by me under the supervision of Dr. Vijendra Nath Pathak, working as Associate Professor, in the Department of Psychology, School of Liberal and Creative Arts (Social Sciences and Languages) of Lovely Professional University, Punjab, India. In keeping with general practice of reporting scientific observations, due acknowledgements have been made whenever work described here has been based on findings of other investigator. This work has not been submitted in part or full to any other University or Institute for the award of any degree.

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## **CERTIFICATE**

I certify that Yashvi Panjra has prepared her thesis titled “The Effect of SuryaNamaskar and Loving Kindness Meditation in Dealing with Social Physique Anxiety and Body Dissatisfaction in Women with Polycystic Ovarian Syndrome” for the award of Ph.D. degree of Lovely Professional University, under my guidance. She carried her work out at School of Social Science and Language, Lovely Professional University, Phagwara, Punjab, India.



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## **ABSTRACT**

**Polycystic Ovary Syndrome (PCOS)** is a disorder that affects 20% of the women population of our country (The Hindu, 2019). Living with a disorder that has no cure can be traumatizing alone. This disorder comes with daunting symptoms like infertility, obesity, acne vulgaris, and facial hair that affect not just an individual physically but also psychologically. Thus, this study aims at addressing and improving the quality of life of women with PCOS. The study identifies the use and effectiveness of intervention techniques of Surya Namaskar and loving-kindness meditation. While Surya Namaskar aims to bring about mobility, aiding weight loss, and dealing with stress and anxiety, bringing in calmness, LKM aims to cultivate self-compassion and self-acceptance that would be essential in dealing with body image issues and Social Physique Anxiety.

based on the findings of the study, it can be concluded that practising Suryanamaskar and meditation can have a considerable influence on anxiety in women who have PCOS. The Surya Namaskara yoga sequence is a unique style of yoga because it connects physical and mental parts of the body via a series of minimal-impact motions. There is a considerable benefit of resistance exercise on the social physique anxiety and body dissatisfaction that is associated with PCOS. As a result, we may conclude that the alternative hypothesis should be accepted and the null hypothesis should be rejected.

60 participants participated in the research project's analysis as part of its sample population. The desired number of individuals in the study was 100. However, only 70 of them exhibited

significant levels of both social body anxiety and appearance anxiety. Only 60 of these 70 people replied to the survey and volunteered to participate in the research. Using a procedure known as simple random sampling, it was decided that 30 of these participants would be assigned to the control group. At the same time, the remaining 30 would be part of the experimental group. The intervention techniques of Surya Namaskar and Love Kindness Meditation were taught to the experimental group, which included a total of thirty participants. The subjects received instruction from experts in their professions in order to become proficient in the performance of various intervention approaches. The experimental group participants participated in a PCOS wellness and fitness camp, where they were required to carry out the above procedures. The lessons lasted for a total of one hour and fifty minutes each and were held twice each week. There is a substantial effect of strength training on PCOS patients' social physique anxiety after eight weeks of participation.

According to the study's findings, Suryanamaskar and meditation have a positive impact on one's overall health and sense of well-being. Women who have polycystic ovary syndrome are finding that these practices are helpful in reducing their levels of social physique anxiety and overall body dissatisfaction.

**Keywords: PCOS, Body Image, Social Anxiety, Social Physique Anxiety, Surya Namaskar, Loving Kindness Meditation, Broaden and Build Theory**

## **ACKNOWLEDGEMENT**

They say it takes a village to raise a child and writing Ph.D. thesis was no less than that. To begin with, I would express gratitude to all those who have contributed to my academic journey. I want to extend my sincere appreciation and gratitude to the individuals and entities who have played a significant role in the completion of this thesis.

I am deeply thankful to my supervisor, **Dr. Vijendra Nath Pathak**, for his guidance, mentorship, and unwavering support. His expertise and encouragement have been instrumental in shaping the direction of my research and refining the content of this thesis.

I want to acknowledge the support and resources provided by my university, **Lovely Professional University, Punjab**. The library facilities, and academic services have been indispensable to the completion of this thesis which makes me also articulate my sincere gratitude towards **Dr. PP Singh**, HOS, for providing me with a platform with excellence in research infrastructure. I would also like to express my gratitude towards our HOD, **Dr. Manish Kumar Verma**, and the entire School of Social Sciences and Languages for always providing valuable feedback and support.

To my family and friends, I owe an immense debt of gratitude. Your unwavering support, encouragement, and understanding have been my constant motivation. Thank you for standing by me during the challenges of this academic endeavour. A special thanks to my mother, **Ms.**

**Namita Panjrath** and my father **Mr. Vipin Panjrath** and my brother **Yuvraj Panjrath** for doing everything possible for me to support me in this academic journey.

A special thanks to my dearest friend **Shubham** for always being a call away and helping me immensely with the statistical analysis.

I express my appreciation to my fellow students, colleagues, and friends who have been part of stimulating discussions, provided valuable feedback, and created a collaborative and enriching academic environment.

A special thanks to the participants and interviewees who generously shared their time, insights, and experiences. Their contributions have added depth and real-world relevance to my research.

A big thank you to all the women with PCOS who came forward and contributed to this project.

This thesis is the culmination of these individuals and institutions' collective support, encouragement, and inspiration. I am profoundly grateful for their contributions.

Thank you.

Yashvi Panjrath

Date: 12/09/2024

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## **Chapter 1: Introduction**

**Keywords: PCOS, Body Image, Social Anxiety, Social Physique Anxiety, Surya Namaskar, Loving Kindness Meditation, Broaden and Build Theory**

### **PCOS: Polycystic Ovarian Syndrome**

Living with a chronic and lifelong condition can be challenging as it takes up a lot of mental space along with experiencing physical difficulties. One such chronic condition is PCOS, also known as Polycystic Ovarian Syndrome, a hormonal and an endocrinal condition that affects women of reproductive age. Abbot et al (2005) study found that this condition has found to be present in 5-10% of the females. Its symptoms include having fertility issues, not ovulating or anovulation, excessive hair on face and body in women, acnes, cysts in the ovaries, low or diminished libido, cysts in the ovaries. Along with these symptoms, these patients are also susceptible to 2 diabetes, depression, cardiovascular disease, anxiety and depression.

While some women may only have a few symptoms, others may have a large range of them, the PCOS spectrum ranges from mild to severe. This issue complicates not just the diagnosis but also the treatment. The initial PCOS diagnostic criteria was provided by Zawadski and Dunaifin 1992, who stated that the diagnosis of PCOS comprises androgen excess (clinical or biochemical) and oligoovulation (eight or fewer periods per year) . Following the publication of this thorough criteria, another detailed criteria was produced, involving the presence of

polycystic ovaries (many tiny cysts on the ovaries visible via an ultrasound scan) as one of the requirements.

There is a great deal of confusion about the root cause of PCOS. It has been discovered that PCOS is largely inherited, and the importance of the DENND1A gene in PCOS has been discovered. Dapas and colleagues (2019). However, PCOS is not totally inherited; it is based on the diathesis stress hypothesis, which claims that genetic syndrome is more likely to appear under stressful environmental situations. Diet is a primary stressor or environmental component. Escobar-Morreale et al. (2005) discovered that a modern lifestyle and diet high in calories, sugar, and saturated fats, carbohydrates has a significant role in the development of PCOS. In addition, a lack of exercise has been identified as a factor.

BPA is a chemical that is commonly found in tin and plastic bottles and containers. This BPA can cause slowed metabolism. Kandarakiet al. (2011) discovered that BPA exposure increased insulin resistance, levels of testosterone in 71 women with PCOS. Another environmental impact is precocious puberty, which occurs at an early age. Childhood obesity has been identified as a primary factor of PCOS and elevated levels of insulin-related problems (Franks, 2008).

Stress does not cause PCOS, but it has been shown to exacerbate its symptoms.

Neuroticism has also been linked to PCOS in women. Neuroticism is a psychological term used to describe characteristics such as dread, anxiety, anger, and depression. Neuroticism was identified in PCOS for the first time in 2011 (Barry et al., 2011). Hirsutism can cause women with PCOS distress (Clayton et al., 2005). Also, women with PCOS are less sociable. Possible

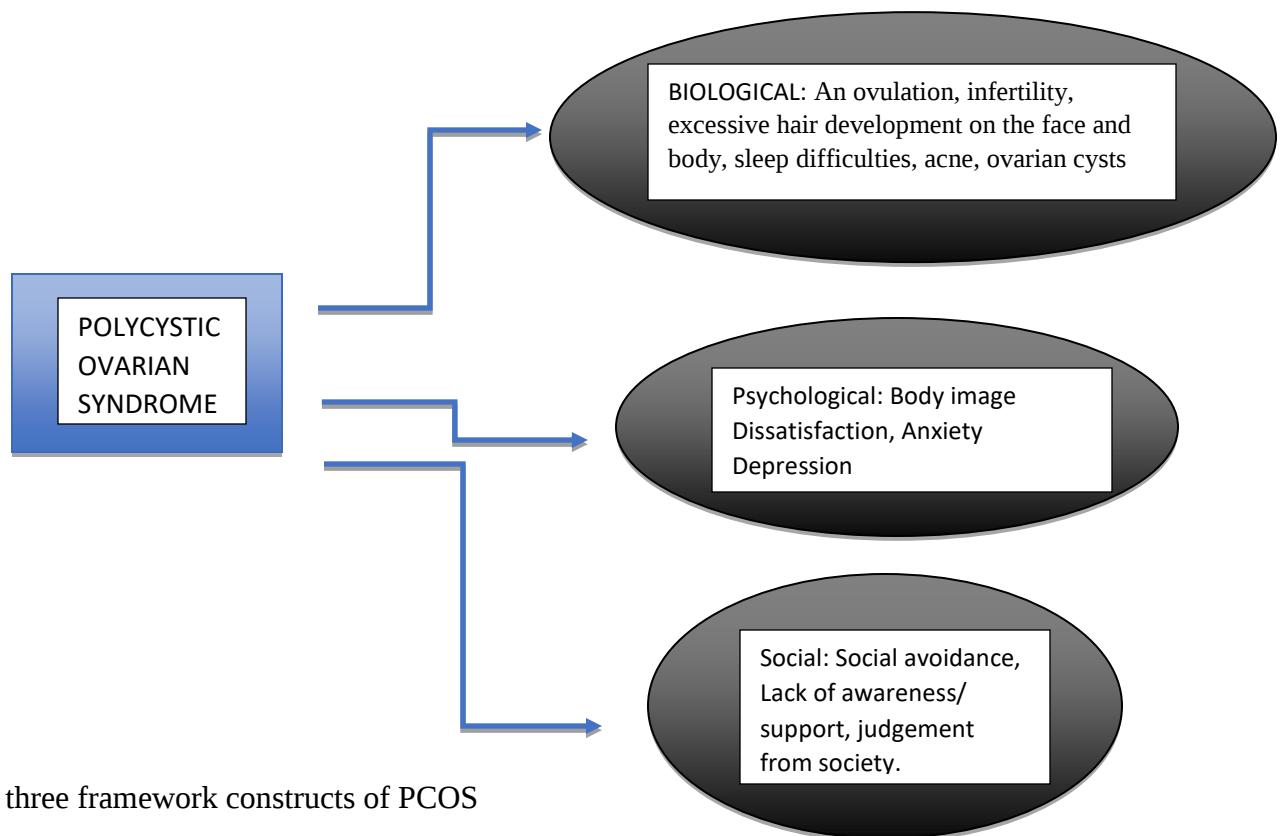
explanations include PCOS symptoms, such as hirsutism, which make socializing difficult and contribute to social phobia. Unfortunately, the onset of PCOS symptoms coincides with a period in a young woman's life when her appearance becomes increasingly essential.

Current research aims to discover the etiology and biological manifestation of PCOS while ignoring the disorder's psychological impact. Consequently, a biometrical approach concentrates solely on treatment, whereas a biopsychosocial model of health psychology emphasizes symptoms and how the patient perceives and responds to the disorder. Only a few studies have been conducted on the psychosocial aspects of PCOS. Living with a sickness or disorder is not only physically uncomfortable and frightening, but it can also have psychological consequences. Obesity is a disease that increases the odds of infertility. Females with male-like traits such as baldness, facial hair, acne, and obesity can experience anxiety, body dissatisfaction, social isolation, and despair. The self-perception of women with PCOS is understudied, resulting in a gap in the present literature, necessitating further research into the psychosocial elements of PCOS and the development of interventions to manage the condition.

### Conceptual Framework:

The current study falls under the biopsychosocial (BPS) model. This model was first given by George Engel in 1977. This is a model that serves as a basis of Health Psychology- a branch of Psychology that focuses on psychological and behavioural factors' contribution to physical health. The BPS model suggests that a physical ailment does not have just biological factors, it also has social and psychological factors.

Bio is the physical pathology, psycho is the thoughts, emotions and behaviours associated with the ailment and social includes socio economic, socio-environmental and cultural factors. PCOS can also be explained well through the BPS model.



The three framework constructs of PCOS

### **Social Physique Anxiety:**

There has always been an exaggerated emphasis on physical beauty in human civilization. People want their bodies to resemble the ideals of their time and society, which has resulted in a greater focus on the Physique. This exterior appearance might have a variety of consequences in our life. Paul Schilder, an Austrian psychiatrist, and Sigmund Freud's disciple coined the term "body image" in 1935. He characterized it as a "person's sense of sexual attractiveness of the body." This definition, however, has developed over time. Personal experiences, as well as cultural forces, now influence body image. This attention to cultural factors and standards can lead to distorted body image when we focus entirely on the shape and size of the body and find it inconsistent or inferior in comparison to these societal standards (Mair, 2018). This exposes the human body or an individual's physique to judgment and opinions of self and others, which can provoke a wide range of emotions. Schlenker and Leary established self-presentation theory in 1982. According to this hypothesis, when exhibiting ourselves to others, we are more inclined to focus on the qualities we like and try to hide the features that cause worry and anxiety. When we are aware of how others perceive us, it significantly impacts our behavior. It can cause stress, particularly in social situations, because we may only focus on the negative opinions and judgments to conceal our shortcomings, which can generate feelings of inadequacy. Dreading others' negative thoughts about themselves, wanting reinforcement of one's own opinions, and seeking peer approval, we have become subject to social anxiety.

An anxiety disorder characterized by avoiding social meetings and interactions owing to being self-conscious or irrational, fear or humiliated by oneself is known as social anxiety. Living in a world where so much media glamourizes false bodily ideals has left us sensitive to bodily dissatisfaction. This bodily can sometimes lead to avoiding social events because they are self-

conscious or ashamed of their appearance, resulting in a condition referred to as Social Physique Anxiety (SPA).

Hart, Leary and Rejeshi (1989) defined SPA as "feelings anxiety resulting from having one physique evaluated by others". SPA is a form of social anxiety as it stems from social judgement regarding one's physique. SPA influences our own physical self-perception. Crocker, Sabistean, Kowalski, McDonough (2006) conducted three-year-old longitudinal analysis to study the relationship between diet and activity and SPA and self-perception of adolescence females and it was found that SPA was highly positively correlated with physical self-perception. Thus, how others view us can also significantly affect our body image and lead to social anxiety.

### **Body Dissatisfaction:**

Body dissatisfaction is a pervasive issue affecting individuals of all ages and genders, characterized by a negative perception of one's own body. It is often triggered by societal ideals, media influences, and unrealistic beauty standards. This paper aims to explore the causes and consequences of body dissatisfaction while highlighting strategies to promote a positive body image. By understanding the complexities of this issue, we can strive towards fostering self-acceptance and cultivating a healthier relationship with our bodies. Causes of Body Dissatisfaction include Societal and Cultural Influences like Media Portrayal. The media plays a significant role in shaping our perceptions of the ideal body. Unrealistic images and beauty standards portrayed in advertisements, magazines, and social media platforms can contribute to feelings of inadequacy and body dissatisfaction.

Cultural norms and societal pressures regarding body shape, size, and appearance can create an environment that promotes body dissatisfaction. Thinness for women and muscularity for

men are often considered as desirable, leading to body dissatisfaction among those who do not conform to these ideals.

Personal Factors like, Perfectionism. Individuals with perfectionistic tendencies are more prone to experiencing body dissatisfaction due to their relentless pursuit of an idealized body. Negative comments or comparisons made by peers, family members, or romantic partners can significantly impact an individual's body image and contribute to body dissatisfaction.

Consequences of Body Dissatisfaction are wide. Psychological Effects like Low Self-esteem: Body dissatisfaction is closely associated with decreased self-esteem, leading to a diminished sense of self-worth and confidence.. Depression and Anxiety: Persistent body dissatisfaction can contribute to the development of depression and anxiety disorders, as individuals may experience increased stress, self-consciousness, and social withdrawal. eating disorders:

It also includes physical effects like Unhealthy Weight Control Behaviors. Body dissatisfaction may lead to engaging in unhealthy weight control behaviors such as extreme dieting, excessive exercise, or the misuse of diet pills, which can have detrimental effects on physical health. Body Dysmorphic Disorder (BDD): Body dissatisfaction can be a precursor to body dysmorphic disorder, a mental health condition characterized by a preoccupation with perceived flaws in appearance.

Body dissatisfaction remains a prevalent concern with far-reaching consequences on individuals' psychological and physical well-being. By understanding the causes and consequences of body dissatisfaction, we can implement interventions that promote positive body image, self-acceptance, and overall mental health. Combating societal pressures, fostering self-compassion, and creating supportive environments are key.

Causes of Body Dissatisfaction in PCOS includes Physical Manifestations of PCOS like Weight Gain, PCOS is frequently accompanied by weight gain or difficulty in weight management. Women with PCOS may struggle with body image due to changes in body shape or size, which can be exacerbated by societal ideals and pressures. Hirsutism: Excessive hair growth (hirsutism) in areas such as the face, chest, and abdomen can lead to self-consciousness and dissatisfaction with one's appearance.

Psychological Factors also add on the body image issues like Comparison with Societal Beauty Standards: Societal beauty standards often prioritize thinness, clear skin, and conventional femininity. Individuals with PCOS may feel inadequate or stigmatized when they do not fit these narrow ideals. Internalization of Stereotypes: Women with PCOS may internalize negative stereotypes surrounding their condition, leading to feelings of shame, guilt, and body dissatisfaction. Psychological Distress.

Consequences of Body Dissatisfaction in PCOS involves Emotional and Mental Health Effects like Decreased Self-Esteem: Body dissatisfaction can significantly diminish self-esteem and self-worth, affecting overall emotional well-being, Anxiety and Depression: PCOS-related body dissatisfaction is associated with increased risk of anxiety and depression, further impairing mental health, Disordered Eating Behaviors: Some individuals with PCOS may engage in disordered eating patterns, such as restrictive dieting or binge eating, as a response to body dissatisfaction and attempts to control weight.

Body image issues in individuals with Polycystic Ovary Syndrome (PCOS) can stem from various factors related to the physical manifestations and psychological impact of the condition. Physical Symptoms of PCOS often presents with physical symptoms that can

contribute to body image concerns. These symptoms may include weight gain or difficulty in weight management, hirsutism (excessive hair growth), acne, and skin problems. These physical manifestations can lead to feelings of self-consciousness, dissatisfaction with one's appearance, and a negative body image.

Societal beauty standards often emphasize thinness, clear skin, and conventional femininity. The physical characteristics associated with PCOS, such as weight gain, hirsutism, and acne, may deviate from these narrow ideals. Individuals with PCOS may internalize these beauty standards and feel inadequate or stigmatized when they do not meet these expectations, further exacerbating body image issues.

There are prevalent misconceptions and stereotypes surrounding PCOS. Some individuals may internalize these negative perceptions, leading to feelings of shame, guilt, and body dissatisfaction. Lack of awareness and understanding from others can exacerbate the emotional burden and body image issues experienced by individuals with PCOS.

Body image issues in PCOS are complex and can vary among individuals. Addressing these concerns requires a multifaceted approach that combines medical management, psychological support, and promoting body acceptance and self-compassion.

### **Suryanamaskar:**

Surya namaskar or Sun salutation is an ancient Indian practice of yoga which is known to be a source of self-illumination. The Hindus respect the sun Or Surya which is the primary source of light and thus is considered to be creator of all life. It is considered that everything originates from the Sun and as a way to honour the sun there exists an amalgamation of Asanas known as Surya namaskar. The word namaskar has a Sanskrit origin from the word "namas" which literally

means "to bow to". Each Asana or mudra that is the gesture commences and concludes with joined hands mudra.

The shift from posture to posture is done with the help of inhalation or exhaling of breath. Studies have demonstrated where physical and mental benefits of regularly performing suryanamaskar are. In a study carried out by Kursi, Santarelli and Rourke (2018) slow breathing which is an essential aspect of Sun salutation has been found to have significant effect on respiratory cardiovascular and autonomic nervous system. Suryanamaskara is the Hindu term for the Sun God's invocation. The Sun, also known as Surya, is the most powerful and ultimate source of energy on this world. The 'Riggveda' (old literature), which is considered to be one of the earliest Vedas, contains primarily passages in honour of the Sun. Cults of Sun worship were prevalent in India, and few evidence in the Sun temples' shape (for example, the well-known Konark and Oddissa Sun Temples)) has led to emulation adoration of the deity. Scientists have discovered that allowing the sun's rays to enter the body through the practise of surya namaskar in the morning is extremely good to one's health. As stated in the 'Puranas,' the sun created the universe by placing a ray in the sun's beams, thereby creating the cosmos. The importance of water, air, and light has been emphasised by Arnold Rickle. When we look at our closest star, we may see only a brilliant yellow ball of light since the sun is our primary light source. Hindus have worshipped the Sun as Surya, the spiritual and physical centre of our globe, and also as the origin of all life, For thousands of years. (Sarita Kushwaha and Manoj Kumar Pathak, 2021).

Suryanamaskar is a set of twelve asanas that include breathing awareness, physical postures, and mantras. Suryanamaskar is a form of yoga that originated in India. "Pranamasana (prayer

posture), Hastthothonasana (raised arm stance), Padhasthasana (hand to foot pose), Aswasanchalasana (equestrian pose), Dandasana(stick pose), Asthangamaskara (salute with eight pieces or points), Bhujanasana (cobra pose), and Paravatasana (cobra pose) are the twelve asanas (mountain pose). Suryanamaskar inoculated us against disease on all levels: physically, psychologically, and spiritually” (Dr. Manojkumar Sharma 2014).

A twelve-step gentle workout routine is Surya namaskar. It’s always asserted that it improves proportionate size and physical fitness of the practitioner. Performing this exercise which is dynamic helps to build strong joints and muscles. Obesity is becoming more prevalent among youngsters and people in their mid-twenties today.

Breathing regime followed each step has been found to improve blood circulation. Practicing Surya namaskar has also found to lower blood sugar levels by stimulating pancreatic cells. This can be beneficial for women with PCOS as PCOS is associated with insulin resistance which affect the insulin secretion thereby, leading to increased blood sugar levels (Dunaif, 1997).

Yoga has been found to be beneficial in dealing with obesity stress and hormonal imbalance (Harrison et al, 2010). Harrison et al demonstrated that 12 consecutive weeks of practicing yoga significantly improve glucose level, lipid and insulin sensitivity in women with PCOS. Performing Sun salutation for at least 5 times in a day can aid weight loss, improve lipid profile and regulate menstrual cycles.

Thus, this yogic practice has been found to reap both physical and mental benefits.

## **Loving Kindness Meditation**

Loving kindness meditation is a technique based on Buddhist tradition in which an individual creates kind intentions towards oneself and others. In LKM it is essential to first comfortably sit in a quiet place, close one's eyes and relax the muscles whilst taking few breaths. After reaching a state of complete relaxation, the individual imagines love for them self and thanks one-self for all that they are and emphasizes on the fact that they are right just the way there. Why focusing on this thought, the individual imagine that they are breathing out all the tension and inhaling feelings of love. This is followed by 3-4 reassuring phrases to one like “may I be happy" "may I be safe" "May I give and receive appreciation today".

One may then continue to focus on these feelings of self-compassion while maintaining focus on ones loved ones in life. One can begin to imagine someone they are very close to like their parent or child, feel gratitude and love for them. Once these feelings are held, gradually shift to another important person, envisioning them. Gradually expand these feelings from loved ones to other friends, neighbours and acquaintances.

One can even include those with whom they are in conflict with and forgive them. When the meditation is complete open the eyes and internalizes how LKM feels. This meditation is based on Metta meditation which is the type of Buddhist meditation. Metta or Maitri in Sanskrit means of positive energy and kindness towards others. The goal of this is to foster kindness for self and others inculcating self-compassion and reducing stress and anxiety and physical pain.

In a study by Totzeck et al (2020), LKM was found to be beneficial intervention to enhance mental health leading to decreased depression, anxiety and stress in students. LKM is a state of unconditional kind attitude towards self and all which includes practice of mindfulness. Loving kindness meditation broadens attention and enhances positive emotions and Lessens negative ones (Dalai Lama and Cutler, 1998).

Loving kindness meditation can enhance health and wellbeing both in clinical and non-clinical settings (Zeng et al., 2015). Studies have shown that enhanced positive emotions can further eliminate anxiety disorders (Teisman et al., 2018) suggesting Loving kindness meditation to be an effective intervention to deal with anxiety disorders.

Looking at the current status of PCOS and how it's impacting the young women, makes it necessary to investigate in this area and devise suitable interventions to help such women. This can be suitably done by referring to the bio psychosocial model as discussed above. The bio psychosocial model suggests that PCOS too has biological, psychological and social factors that affects the condition, making these important factors or contributors to consider. Surya namaskar is suggested to address the biological contributors of PCOS as it is a holistic form of exercise which has been found to help manage physical ailments. To address the psychological factors like negative body image, social anxiety, anxiety depression, negative thoughts about self, Loving kindness meditation or other forms of affirmations and meditations might help. And psychoeducation can help deal with the social factors to educate not just the women with PCOS but also the society to bring about more acceptance and desensitize the stigma against the same and help provide such women a conducive and nurturing environment.

## **Chapter 2: Literature Review**

### **Surya Namaskar:**

Surya namaskara is the Hindu phrase for invoking the Sun God. The Sun, also known as Surya, is the world's most powerful and ultimate source of energy. The 'Rigveda' (ancient literature), considered to be one of the earliest Vedas, contains passages mostly dedicated to the Sun. Cults of Sun worship were common in India, and little evidence in the shape of Sun temples (for example, the well-known Konark and Oddissa Sun Temples) has led to the veneration of the deity. Scientists have found that enabling the sun's rays to enter the body in the morning through the practice of surya namaskar is tremendously beneficial to one's health. According to the 'Puranas,' the sun formed the universe by placing a ray in the sun's beams, resulting in the creation of the cosmos. Arnold Rickle has emphasized the need of water, light and air. Because the sun is our major light source, we may only see a brilliant yellow ball of light when we look at our nearest star. For thousands of years, Hindus have worshiped the Sun as Surya, the physical and spiritual centre of our planet, as well as the source of all life. Manoj Kumar Pathak and Sarita Kushwaha, 2021

Suryanamaskar has found to protect us from disease on all levels: physically, spiritually and psychologically," (Dr. Manojkumar Sharma 2014).

Obesity is on the rise among teenagers and people in their twenties nowadays. The goal of this study is to see if Surya namaskara has any effect on obese patients in terms of weight loss. Thirty people from Srinagar, Garhwal, with an average age of 25-30 years, a height of 155-167 cm, and a weight of 70-82.5 kg participated in the study as subjects. They all seemed to be in relatively

good health. In the literature, it is mentioned that regular Surya namaskara practice leads to weight loss and performance improvement. The findings of the scientific investigation showed that practicing Surya namaskara everyday for 30 days caused 15 obese study participants to lose a significant amount of weight. According to this study (Rajni Nautiyal, 2016), obese people can significantly reduce their body weight by using the Surya namaskarapractise.

According to the National Institute of Mental Health (BragdonL, Desikachar K, Bossart C, 2005), yogic practices promote and improve body flexibility and respiratory, muscular strength, and cardiovascular function, aid in therapy and recovery from addiction, decrease stress, anxiety, depression, and chronic pain, and enhance quality of life and overall well-being, and improve sleep patterns. Yoga practice can assist to diminish activity in the areas of the brain responsible for anger, fear, and aggression while also boosting the rewarding pleasure centres in other locations, particularly the middle forebrain, resulting in a state of joy and happiness. As a result of this inhibition, students who practice yoga and meditation have decreased levels of heart rate, anxiety, respiration rate, blood pressure, and cardiac output. Deshpande VN, Bharshankar RN, Kaore SB, Gosavi GB, 2003).

An ancient yogic practice, sun salutation (Suryanamaskar), is a set of postures (Asanas) with a precise breathing rhythm that can be performed in devotion to the sun. Direct gland massage and increased blood flow to organs serve to restore harmony to the entire endocrine system, which helps regulate the menstrual cycle. Suryanamaskar and Kaduskar (2015). Blood sugar levels drop, insulin levels rise, lipid profiles improve, and weight reduction happens as a result of

practicing yoga's Sun Salutation (particularly advantageous for patients with PCOS) (Sharma SB, 2005; Malhotra V, Singh S, Tandon OP).

Boosting cardiovascular stimulation, metabolic rate, mental wellbeing, respiratory capacity, and proper endocrine gland function were all highlighted as physiological benefits. Suryanamaskar is essential for a general person to maintain physical, mental, and physiological wellness. When children are introduced to this exercise at the age of seven or eight, they improve both physically and psychologically. Suryanamaskar practices or similar activities benefit the entire family's health. Suryanamaskar is a blessing for people who want to practice yoga but don't have an hour every day. According to published studies, researchers emphasize the importance of Suryanamaskar in study by emphasizing its effects on psychological, physical, and physiological parts of the body. Suryanamaskar's significance as a single, all-encompassing sadhana is also emphasized. (Vandhana S., L. Prasanna Venkatesh, 2022).

Practicing Suryanamaskar on a daily basis may aid in sustaining optimal mental and physical health over time. Regular Suryanamaskar practice has been shown to reduce both physical and mental tension. Perhaps corporate wellness centers, recreational venues, and universities should give lectures on the Suryanamaskar series to make these ostensibly self-directed and beneficial techniques as accessible as feasible to the general public. The above stated literature suggests that sun salutations may be beneficial in helping regulate irregular menstrual cycles in women with PCOS, manage anxiety through breathwork involved. However, on the contrary, there are studies that suggest that PCOS can be well managed by strength training as it helps reduce insulin sensitivity, body fat, lowering testosterone and enhancing metabolic health (Nama et al.,

Tahun, 2025). This brings about a gap in the literature to explore the effectiveness of body weight exercises like sun salutation in managing PCOS.

### **Meditation:**

The Loving Kindness Meditation (LKM) involves cultivating emotions of compassion, love and kindness, regarding oneself and others. It has been demonstrated to be effective in reducing social body anxiety and body dissatisfaction in women (Sears & Kraus, 2009). (Salsman & Linehan, 2006) Mindfulness-based psychotherapies are growing an increasingly popular option for treating a wide variety of mental health issues. To cultivate mindfulness, one must deliberately pay attention to both external and internal events that occur in the present moment, without judgment or evaluating them. If done correctly, meditation can help improve cognitive capacities such as objectivity, metacognition and acceptance, (Hayes & Kelly, 2003). Meditation has been found to have a variety of beneficial impacts. Empirical research suggests that mindfulness training can be used to treat a variety of issues, including depression and somatic diseases (Broderick, 2005), (Sharma, Mishra, & Balodhi, 1990).

Meditation can help people achieve mental and emotional well-being, as well as improve their physical health, memory, and motivation. According to nutrition expert (Martha Mckittrick 2020), improving one's reappraisal, which has been shown to be negatively associated to both sadness and anxiety, and letting go of suppression, anxieties and ruminations are two ways that meditation can help with anxiety and depression. Treatment for PCOS has several health benefits, ranging from reducing cortisol levels to lowering the likelihood of heart disease.

The ability to manage one's focus in order to avoid being caught up in a person's daily thoughts may be described for meditation. To acquire "thoughtless awareness," a state in which one is passively attended to the sensations in the present moment, one needs practice meditation for a period of time. Although there are numerous approaches, it is widely held that relaxing the muscles and the 'logic' section of your brain is crucial. Popular opinion holds that the practice generates a condition of physical and mental tranquility (de Souza E, Cardoso R, Leite J, Camano L, 2004).

### **Polycystic ovarian syndrome, PCOS:**

PCOS is a prevalent endocrine condition that primarily affects women of age to reproduce. Women with PCOS frequently suffer from social anxiety and body dissatisfaction, which can contribute to mental health problems such as depression and anxiety (Adebisi et al., 2021)(Himelein& Thatcher, 2006) Azizi and Elyasi (2017). Furthermore, PCOS is linked to binge eating and eating disorder symptoms Paganini et al. (2017) (Adebisi et al., 2021). As a result, it is critical to investigate effective therapies that can assist women with PCOS in managing their social anxiety and body dissatisfaction. Himelein and Thatcher (2006) evaluated depression and body image measures in women with PCOS, women with infertility but not PCOS, and women with neither PCOS nor infertility. In comparison to the other two groups, women with PCOS reported higher degrees of sadness and body dissatisfaction (Himelein& Thatcher, 2006). A review of studies on the association among body dissatisfaction and chronic fatigue syndrome was conducted. They discovered a link among body dissatisfaction and chronic fatigue syndrome. This emphasizes the necessity of addressing body dissatisfaction in PCOS women, as it can lead to additional health problems. Kosmidou et al. (2022) investigated the impact of

psychological and physical abuse by coaches on social physique anxiety, body dissatisfaction, and the desire to be skinny in former Greek female athletes. They discovered that psychological abuse was linked to increased levels of social anxiety and body dissatisfaction (Kosmidou et al., 2022).

A disorder known as polycystic ovarian syndrome, which is linked to the growth of polycystic ovaries, affects women who are of reproductive age. PCOS symptoms include amenorrhea, hirsutism, and obesity (Stein IF 1935). One of the signs and symptoms of alopecia areata is excessive facial and chest hair growth. Gullo G., Unfer V., and Proietti S. The most frequent side effects of polycystic ovarian syndrome include diabetes, infertility, cardiovascular disease, dyslipidemia, glucose intolerance, hypertension, and metabolic syndrome. 2010 saw the work of three scholars (Teede, Deeks and Moran) from the University of Toronto.

For the treatment of PCOS, a number of medications are available, each with a different level of efficacy and a unique set of side effects. The research that is now available suggests that changing one's lifestyle could be a first-line effective strategy of preventing PCOS. Nidhi R, Nagarathna R, Padmalatha V, Amritanshu R, Padmalatha V, Nidhi R (2012) One's risk of developing PCOS can be reduced with even a small change in lifestyle. As of late, there are no drugs specifically designed to treat polycystic syndrome. Numerous studies have shown the advantages of adopting a healthy lifestyle, including eating a balanced diet (Piltonen T, Morin-Papunen L, Puurunen J, et al., 2011), yoga, and physical activity (Verma A, Dhiman K, Kumar S, Dei L, 2015). Women with PCOS experience extreme insulin resistance, an unusually high level of androgen, and body weight gain. The most effective combination of lifestyle

adjustments to combat this catastrophe is weight loss, which has both therapeutic and preventive benefits. The main ways to keep people healthy while also managing their own hormonal and endocrine system functions are through nutrient-dense foods (PatthyaAhar) and yoga exercises that are recommended in Ayurvedic literature. Breathing exercises, or pranayam, are very helpful in reducing PCOS symptoms brought on by mental rooted stress and in making a person motivated to deal with this state of resentment. These lifestyle changes not only enhance the general well-being of PCOS patients, but also enable them to increase their fertility rates (Drs. Ved Prakash, Suman, Yogesh, Rishusharma, Subhash Upadhyay, and Anupam Pathak, 2019).

A holistic yoga program lasting 12 weeks is significantly superior to any other physical exercise, in the opinion of Dr. Nidhi et al. (2013), for lowering LH, AMH, and testosterone levels as well as enhancing the mean FG rating for hirsutism, with no appreciable changes in FSH, body weight, or prolactin. Yoga has been demonstrated to be more effective than conventional physical exercises for improving insulin values, glucose and lipid, including insulin resistance, in adolescent females with PCOS, regardless of anthropometric factors, according to Dr. Nidhi et al.'s 2012 prospective, randomised, interventional regulated trial with ninety adolescents. (Dr. Nidhi et al. 2013) examined the impact of a 12-week yoga program on the quality of life of adolescent females with PCOS and found that yoga is much more beneficial than physical exercise for improving quality of life.

## **Surya namaskar for anxiety and PCOS:**

Yoga, and specifically Surya Namaskar (Sun Salutation), has gained increasing attention as a holistic intervention with the potential to alleviate both psychological and physiological conditions, including anxiety and polycystic ovary syndrome (PCOS). A growing body of research suggests that regular Surya Namaskar practice may reduce stress, regulate hormones, and improve overall well-being. However, the existing literature remains fragmented and varied in methodological rigor, with limited studies that systematically investigate its standalone efficacy, particularly when compared to other therapeutic modalities.

Surya Namaskar has been repeatedly cited for its capacity to reduce anxiety and psychological distress. Sharma (2003) demonstrated statistically significant reductions in anxiety levels after a month-long intervention of Surya Namaskar, beginning with five rounds per day and increasing to ten. Similarly, Godse, Shejwal, and students (2015) found the practice effective in reducing anxiety and stress levels among college students. These findings echo earlier claims by Niranjanananda (1997), who emphasized Surya Namaskar's calming effect on the nervous system. Nonetheless, many of these studies use small samples, short intervention durations, and lack appropriate control groups, limiting the generalizability of the findings. Moreover, the variance in intervention protocols ranging in frequency, duration, and integration of mantra or pranayama complicates direct comparison across studies.

The physiological benefits of Surya Namaskar extend beyond stress relief. Several studies link the practice to improved reproductive health and metabolic function in women with PCOS. Archana (2018) highlighted its efficacy in managing menstrual irregularities, while Ghaffararilaleh et al. (2018) noted improvements in sleep quality among women with

premenstrual syndrome following Surya Namaskar practice. Rani et al. (2018) found that Surya Namaskar led to significant improvements in hormonal balance and menstrual regularity in women with PCOS. These results are supported by Khalsa et al. (2016), who observed decreases in insulin resistance and anxiety among PCOS patients following a structured Surya Namaskar regimen. However, these studies often employ multi-component interventions combining yoga with breathing exercises, meditation, and lifestyle modifications making it difficult to isolate the effects of Surya Namaskar alone.

The integration of meditative practices such as Loving-Kindness Meditation (LKM) alongside Surya Namaskar may offer additional psychological benefits, particularly for women experiencing body image dissatisfaction and social anxiety, which are common in PCOS populations. Khoury et al. (2015) found that LKM significantly improved emotional regulation, empathy, and social connectedness while reducing negative affect. Although preliminary, these findings suggest that combined interventions involving both physical and meditative components may offer synergistic effects, addressing both the physiological and psychological dimensions of PCOS. However, empirical comparisons between standalone and integrated interventions remain rare, signaling a critical gap in the literature.

More broadly, lifestyle modification including exercise and nutritional changes has been shown to be effective in managing PCOS and related hormonal imbalances. Studies by Gibson-Helm et al. (2014) and Mishra et al. (2015) demonstrated that physical activity and weight loss improved metabolic parameters and reduced androgen levels in women with PCOS. While yoga is often categorized as a form of low- to moderate-intensity physical activity, it also engages the autonomic nervous system and stress pathways, which may explain its benefits beyond those

observed in conventional exercise. Despite this, there is a lack of direct comparative studies between Surya Namaskar and other forms of exercise, such as resistance training or aerobic workouts, making it difficult to determine relative efficacy.

The neurophysiological mechanisms underlying yoga's benefits are still being explored. Streeter et al. (2010) proposed that yoga increases gamma-aminobutyric acid (GABA) levels, thereby alleviating symptoms of anxiety and depression. Sengupta (2012) suggested that yoga modulates the neuroendocrine axis, improving hormonal balance and reducing stress-related endocrine disruption. Yet, many of these proposed mechanisms remain theoretical, with limited large-scale clinical validation. Moreover, while some researchers have noted yoga's impact on neurohormonal parameters such as cortisol, aldosterone, and testosterone, these findings have not consistently been replicated in well-controlled trials.

PCOS-specific studies have also highlighted the psychological burden of the disorder, noting a lack of focus on mental health in clinical management. Azizi and Elyasi (2017) criticized the medical community for prioritizing physical symptoms while overlooking the psychological sequelae of PCOS, such as body dissatisfaction and social withdrawal. In this context, yoga including Surya Namaskar has been proposed as a complementary or alternative therapy that addresses both mental and physical health outcomes. Several studies support this assertion, including those by Sode and Bhardwaj (2017) and Nidhi et al. (2012), who found that yoga interventions led to reductions in depression and anxiety symptoms among adolescent girls with PCOS. However, the wide variability in study designs, durations, and outcome measures limits the strength of these conclusions.

Preventive applications of Surya Namaskar have also been suggested, especially for adolescent populations. Selvaraj et al. (2020) demonstrated that integrating yoga and fitness practices into school routines could reduce the risk of PCOS development in adolescent girls. These findings are encouraging, yet they are based on quasi-experimental designs and short follow-up periods. Longitudinal studies tracking lifestyle interventions from adolescence through adulthood are necessary to establish lasting preventive effects.

Despite the promising findings, several methodological weaknesses recur throughout the literature. Many studies are limited by small sample sizes, lack of randomization, absence of control groups, and inadequate reporting of statistical power or effect sizes. In addition, heterogeneity in PCOS phenotypes and lack of subgroup analyses further weaken the interpretability of results. Few studies examine the differential effects of yoga across varying severities of anxiety or PCOS manifestations, leaving a significant gap in personalized recommendations for clinical practice.

In conclusion, while Surya Namaskar appears to offer a multifaceted intervention capable of addressing both the psychological and physiological aspects of anxiety and PCOS, the current evidence base is insufficiently robust to support strong clinical recommendations. The integration of meditative practices such as LKM may enhance outcomes, but this area remains underexplored. Future research should prioritize well-designed randomized controlled trials, with standardized protocols and long-term follow-up, to determine the efficacy and mechanism of Surya Namaskar both as a standalone practice and in conjunction with other therapeutic modalities. Addressing these gaps will be essential in positioning yoga-based practices as

credible, evidence-based interventions within the broader framework of integrative and preventive healthcare.

### **Suryanamaskar and Loving kindness Meditation for anxiety and PCOS:**

Women with polycystic ovary syndrome (PCOS) frequently experience psychological challenges, including social anxiety and body dissatisfaction, which can significantly impact their quality of life. Despite the high prevalence of these mental health concerns, traditional treatment approaches to PCOS often prioritize physiological symptoms, such as menstrual irregularities and insulin resistance, while neglecting the psychological sequelae. Emerging research suggests that integrative mind-body practices specifically Surya Namaskar (Sun Salutation) and Loving-Kindness Meditation (LKM) may offer promising adjunctive benefits for addressing these under-recognized aspects of PCOS.

Khalsa et al. (2016) investigated the effects of Surya Namaskar in women with PCOS and found significant reductions in anxiety levels, insulin resistance, and body fat percentage following regular practice. These findings indicate that Surya Namaskar, as a combined physical and breathing practice, may have a regulatory effect on both metabolic and psychological parameters. Similarly, Rani et al. (2018) observed improvements in hormonal profiles and menstrual regularity, alongside a decrease in body fat percentage, suggesting that Surya Namaskar may influence endocrine function as well.

In addition to physical practices, meditation-based interventions have shown promise in targeting psychological symptoms. Loving-Kindness Meditation (LKM), a contemplative practice aimed at cultivating compassion toward oneself and others, has been associated with enhanced

emotional resilience. In a study by Khoury et al. (2015), LKM was found to significantly increase positive affect, empathy, and social connectedness, while reducing negative emotions such as anxiety and depression. These findings are particularly relevant for women with PCOS, many of whom report feelings of low self-worth, social withdrawal, and dissatisfaction with their body image.

Despite the promising nature of these interventions, much of the existing research remains preliminary. Studies like those conducted by Khalsa et al. and Rani et al. often employ small sample sizes, short intervention durations, and lack follow-up assessments, making it difficult to draw conclusions about long-term efficacy. Furthermore, there is a notable absence of comparative trials evaluating Surya Namaskar and LKM either independently or in combination, limiting our understanding of their relative or synergistic effects.

Nonetheless, the combined use of Surya Namaskar and LKM represents a holistic, non-pharmacological approach that may simultaneously address the physiological, emotional, and social dimensions of PCOS. Both practices appear to support improvements in body composition, hormonal regulation, emotional well-being, and self-perception. Given the complex and multifactorial nature of PCOS, further investigation into these integrative therapies is warranted. Future studies should employ rigorous methodologies, including randomized controlled designs, larger and more diverse samples, and long-term follow-up to assess sustainability of outcomes. Importantly, attention should be paid to psychological variables such as self-esteem, social anxiety, and body image dissatisfaction domains that remain underexplored in current PCOS research but are essential to holistic patient care.

## **Gap of the Study:**

One in five Indian women suffer from PCOS (The Hindu, 2019). With such an alarmingly high prevalence of this condition there is yet an ambiguity about PCOS' diagnosis even in today's times making its management all the more complex. The current researches are thus aiming to find out the etiology and biological expression of PCOS sidelining the psychological impact of the disorder. Thus, following a biometrical approach. Biomedical approach focuses only on the treatment on the other hand a biopsychosocial model of health psychology emphasizes not just on symptoms but also on how the disorder is perceived and responded to by the sufferer. Very handful of researches have been done covering the psychosocial aspects of PCOS. Living with the disease or a disorder cannot just be painful and daunting physically but can also have psychological repercussion. A disorder that is marked by chances of infertility, obesity, Male like characteristics in females like baldness facial hair acne and obesity can lead to body dissatisfaction, social isolation, anxiety and depression. The self-perception of women with PCOS is very less researched on thereby creating a gap in the current literature bring about a need to investigate psychosocial dimensions of PCOS and for the coming up with intervention to manage the same. Furthermore, no single study has been done on Social Physique Anxiety or Social anxiety in women with PCOS. Referring to the review of literature it can be observed that very handful of studies have been done using loving kindness meditation as a tool to deal with neurotic disorders. While there is considerable amount of work done on other types of meditations like mindfulness and transcendental meditation, loving kindness meditation has been sidelined. Loving kindness meditation thus needs to be explored to study the effectiveness in dealing with body image issues, Anxiety,

stress and other neurotic disorders and understand its efficiency and role in enhancing self-compassion and improving quality of life amongst its practitioners.

### **Scope of the Study:**

The current study concerns and deals with a disorder that affects 20% of the women population of our country (The Hindu, 2019). Living with a disorder that has no cure can be traumatizing alone. This disorder comes with daunting symptoms like infertility, obesity, acne vulgaris, facial hair that not just affects an individual physically but also psychologically. Thus, this study aims at addressing and improving the quality of life of women with PCOS. The study will identify the use and effectiveness of intervention techniques like Surya namaskar and loving kindness meditation. While surya namaskar aims at bringing about mobility, aiding weight loss and dealing with stress and anxiety bringing in calmness, LKM aims at cultivating self-compassion and self-acceptance that would be essential in dealing with body image issues and Social Physique Anxiety.

This research can open gateway to intervention techniques that can treat psychosocial implications of PCOS along with medical treatment.

This research outlines intervention techniques that can be useful in both clinical and non-clinical settings.

These techniques can be taught and practised at schools, colleges and other organisations to manage stressors and develop love and compassion for self and others. We live in a society where people are constantly striving to conform to the standards of body image laid by the media making one vulnerable to various body image issues, social anxiety especially social physique anxiety. Therefore, there is a need to generate self-compassion among the masses. These interventions have the scope to generate positive emotions among its practitioners.

Thus, there is a scope of identifying the usefulness of intervention techniques that would improve the quality of life in women with PCOS and promote overall well-being.

## **Chapter 3: RESEARCH METHODOLOGY**

### **Objectives:**

1. To examine the level of body dissatisfaction in women with PCOS.
2. To identify the level of social physique Anxiety in women with PCOS.
3. To investigate the effect of Surya namaskar in dealing with psychosocial impact of PCOS on body dissatisfaction and social physique anxiety.
4. To find the effectiveness of Loving Kindness meditation in reducing social physique anxiety and body dissatisfaction in women with PCOS.

### **Hypotheses:**

Hypothesis 1: Women with PCOS will have a higher level of body dissatisfaction.

Hypothesis 2: Women with PCOS will have a higher level of social physique anxiety.

Hypothesis 3: Surya Namaskar and Loving Kindness Meditation will have a synergistic positive effect in reducing the psychosocial impact of PCOS on social physique anxiety in women with PCOS.

Hypothesis 4: The interventions of Surya Namaskar and Loving Kindness Meditation will be more effective in reducing body dissatisfaction (AAI) in women with PCOS compared to a control group receiving no intervention.

**Participants:**

There were a hundred participants for the study. Out of these 100, only 70 participants had high levels of social physique anxiety and appearance anxiety. Out of these 70 participants, only 60 responded and agreed to participate in the study. The participants were selected from colleges in Dehradun, India, and were between the ages of 18 and 30 years.

**Design of the Study:**

The study implemented a quasi-experimental design involving two groups: an intervention group and a control group. The design followed a pre-test and post-test framework, where participants were randomly assigned to either the experimental group or the control group. Measurements were collected both before and after the intervention was administered to the experimental group. For participant selection, the Rotterdam criteria for diagnosing PCOS were used. According to these criteria, a diagnosis of PCOS requires the presence of at least two out of the following three conditions: oligomenorrhea or anovulation, hyperandrogenism, and polycystic ovaries as confirmed by ultrasound.

**Sampling:**

To test the stated hypotheses, non-probability method of Simple Random Sampling is used. This is best suited for this research as the study focuses only on a well-defined population that is women with PCOS having social physique anxiety. This sampling technique relies on judgment of the researcher whilst selecting the samples for the study. The current study employs 100 women with PCOS. Out of these 100, 60 were further exposed to interventions. Out of which 30 were in the experimental group that was given interventions and remaining 30 were in the

control group. The subjects will be randomly distributed to the control and experimental groups using probability sampling method of simple random sampling.

**Inclusion criteria:**

- Women with a diagnosis of Polycystic ovarian syndrome (PCOS) aged between 18 and 30 years.
- Women diagnosed with PCOS by a Gynaecologist.
- Participants who had high levels of social physique anxiety and appearance anxiety as assessed by the SPAS and appearance anxiety scale.
- Participants who were able to attend the intervention sessions.
- Participants who were willing to complete the study questionnaires and assessments.

**Exclusion criteria:**

- Participants who were pregnant or breastfeeding had a history of psychiatric disorders.
- Participants who were undergoing any other treatment for PCOS during the study.
- Participants who were unable to attend the intervention sessions or complete the study questionnaires and assessments.

**Tools:**

To assess the psychological dimensions relevant to women with polycystic ovary syndrome (PCOS) specifically, social physique anxiety and appearance-related distress this study employed two psychometric instruments: the Social Physique Anxiety Scale (SPAS) and the Appearance Anxiety Inventory (AAI). These tools were selected due to their established validity and reliability, as well as their relevance to the study's aim of exploring body image-related anxiety and its potential relationship to interventions such as Surya Namaskar and Loving-Kindness Meditation.

**The Social Physique Anxiety Scale (SPAS)**, developed by Hart et al. (1989), is a 12-item self-report instrument that measures the extent to which individuals feel anxious about how others perceive their physique. Responses are recorded on a 5-point Likert scale, yielding a continuous score that reflects the degree of social physique anxiety. The SPAS is particularly suited for research contexts focusing on exercise and body-related self-consciousness, making it a relevant tool for populations such as women with PCOS, who often report heightened concerns about physical appearance and weight. Hart and colleagues reported strong psychometric properties for the SPAS, including high internal consistency ( $\alpha = .90$ ), robust construct validity, and minimal susceptibility to social desirability bias. Although the SPAS is not used for clinical diagnosis and lacks definitive cut-off scores, it is valuable for identifying relative differences in anxiety levels and for tracking changes over time in response to interventions.

**The Appearance Anxiety Inventory (AAI)**, developed by Veale et al. (2014), was employed to assess anxiety related to body image dissatisfaction and self-consciousness. This 10-item measure captures both cognitive and behavioral dimensions of appearance-related anxiety, such as avoidance behaviors and threat monitoring. Participants rate each item on a 5-point Likert scale (0 = “not at all” to 4 = “all the time”), with total scores ranging from 0 to 40. While the AAI does not offer diagnostic thresholds, it is widely used to measure the severity of appearance anxiety symptoms in both clinical and non-clinical populations. Its strong internal consistency (Cronbach’s  $\alpha = .86$ ) and convergent validity ( $r = .55$ ) support its use in research examining interventions that may influence self-perception and body-related anxiety. Factor analytic studies have also supported the AAI’s bifactor structure, highlighting key psychological mechanisms—such as avoidance and hypervigilance—that are particularly relevant for understanding body image concerns in PCOS populations.

Together, these instruments provide a comprehensive evaluation of both social and internalized dimensions of appearance-related anxiety. Their combined use enables a nuanced analysis of how interventions like Surya Namaskar and LKM may influence psychological well-being, particularly in domains that are closely tied to self-image and social functioning. By employing tools that are both validated and sensitive to change, the study is positioned to rigorously examine the psychological impact of mind-body practices on women with PCOS.

**Procedure:**

A total of 100 participants were initially involved in the study. Of these, 70 individuals exhibited high levels of social physique anxiety and appearance anxiety. From this subset, 60 participants agreed to take part in the research. The participants were selected from colleges in Dehradun, India, and were aged between 18 and 30 years. The study employed a purposive sampling method to focus on 100 women with PCOS from the same colleges.

The Social Physique Anxiety Scale (Hart et al., 1989) and the Appearance Anxiety Inventory (Veale et al., 2014) were administered to these 100 women. Based on the results, 70 participants showing signs of bodily dissatisfaction, appearance anxiety, and social physique anxiety were selected for further analysis using a pre-test post-test control group design. Among these 70 participants, 60 consented to continue with the study.

These 60 participants were randomly assigned to either the control group or the experimental group, with 30 participants in each group. The experimental group underwent intervention techniques, including Surya Namaskar and Loving-Kindness Meditation. Professional trainers conducted these sessions during a PCOS wellbeing and fitness camp, which consisted of two 50-minute sessions per week. The experimental group received follow-up to ensure adherence to the practice. Five of these participants were further interviewed to get an in depth understanding of the effectiveness of the intervention.

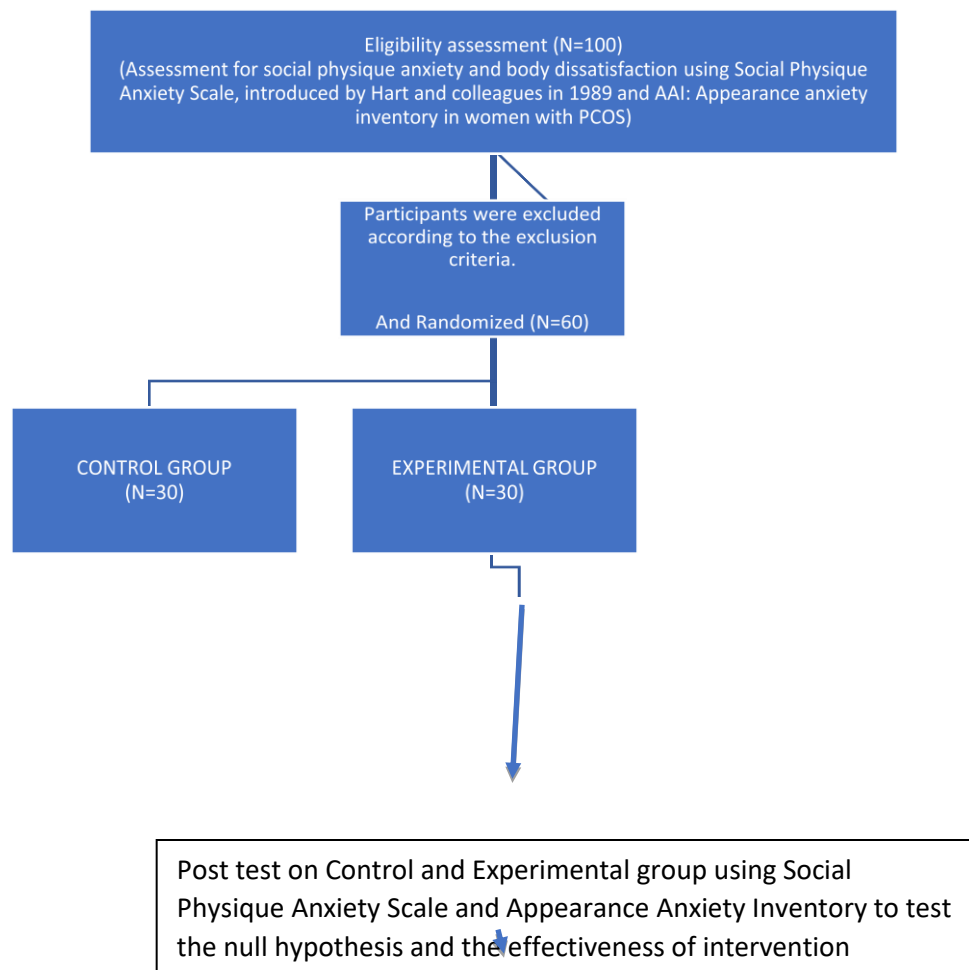
The control group did not receive any interventions. After eight weeks, both groups were re-evaluated using the Social Physique Anxiety Scale and the Appearance Anxiety Inventory to

assess the effectiveness of the interventions. Statistical analysis was performed on the collected data to test the study's hypotheses.

**Intervention:**

The participants were divided into two groups: a pre and post group and a controlled group. The pre and post group consisted of 30 participants who received the intervention of Surya Namaskar and Loving Kindness Meditation for 8 weeks, with two sessions per week to avoid habituation. Both the SPAS and the Appearance Anxiety inventory were used to assess the participants before and after the intervention. The controlled group consisted of the remaining 30 participants who did not receive the intervention.

Table 3.1: Intervention Plan



### **Surya Namaskar:**

Surya Namaskar is an ancient Indian yogic technique that has been found to bring both physical health and mental health benefits. Management of PCOS requires lifestyle modifications that include diet changes and regular exercise. Thus, Surya Namaskar would aid weight loss and improve physiological symptom improving body image of the subject. Surya Namaskar also involves deep inhalation and exhalation of breath, thereby reducing stress and anxiety in the

subjects which is often found to be comorbid in women with PCOS. The subjects in the experimental group will be trained to perform surya namaskar by a professional and will be made to perform the same for 8 weeks, six times in a week, five repetitions each day. Necessary follow-ups will be taken from the subjects and will be motivated consistently.

### **Loving Kindness Meditation:**

The subjects in the experimental group will be taught to perform love kindness meditation by a professional and will be made to perform it every day for Eight weeks. LKM has been found to bring about self-compassion and love for self and others. This would aid and facilitate better adjustment with one's body image and bring about self-acceptance.

### **Data Analysis:**

The data collected were analyzed with the Statistical Package for Social Sciences (SPSS) version 25. To characterize the demographic details of the participants, descriptive statistics such as mean, standard deviation, and frequency distribution were employed.

Paired t-tests were utilized to compare pre- and post-intervention scores on the SPAS and appearance anxiety scale within both the intervention and control groups. Independent t-tests were conducted to assess differences between the groups regarding their pre- and post-intervention scores.

**Ethical Considerations:**

This study was conducted in accordance with the guidelines of the Helsinki Declaration and approved by the Institutional Ethics Committee. Informed consent was obtained from all the participants before the start of the study. Participants were informed about the purpose of the study, their right to withdraw at any time, and the confidentiality of their responses.

## CHAPTER 4: RESULTS AND DISCUSSION

**Table 4.1: Demographic Characteristics and Baseline Measures of Social Physique Anxiety and Appearance Anxiety**

| Statistics             | Variables |               |                               |                                        |
|------------------------|-----------|---------------|-------------------------------|----------------------------------------|
|                        | Age       | Educa<br>tion | Social<br>Physique<br>Anxiety | Appearan<br>ce<br>Anxiety<br>Inventory |
| N                      | 100       | 100           | 100                           | 100                                    |
| Mean                   | 1.74      | 1.21          | 27.7                          | 21.18                                  |
| Std. Error of Mean     | 0.084     | 0.041         | 0.441                         | 1.161                                  |
| Median                 | 1         | 1             | 27.5                          | 27                                     |
| Std. Deviation         | 0.836     | 0.409         | 4.412                         | 11.61                                  |
| Variance               | 0.699     | 0.168         | 19.465                        | 134.796                                |
| Skewness               | 0.525     | 1.446         | 0.401                         | -0.494                                 |
| Std. Error of Skewness | 0.241     | 0.241         | 0.241                         | 0.241                                  |
| Kurtosis               | -1.373    | 0.092         | 0.005                         | -1.406                                 |
| Std. Error of Kurtosis | 0.478     | 0.478         | 0.478                         | 0.478                                  |
| Range                  | 2         | 1             | 20                            | 35                                     |
| Minimum                | 1         | 1             | 20                            | 0                                      |
| Maximum                | 3         | 2             | 40                            | 35                                     |

100 participants were included in the analysis, with no missing data across the variables of interest: Age, Education (Edu), Social Physique Anxiety before intervention (SPA), and Appearance Anxiety Inventory before intervention. The mean age of participants was coded as 1.74 (SD = 0.836) on a scale presumably ranging from 1 to 3, indicating a relatively young sample. Education levels, coded from 1 to 2, had a mean of 1.21 (SD = 0.409), suggesting that the majority of participants had a lower designated education level.

The baseline Social Physique Anxiety (SPA pre scores) showed a mean score of 27.7 (SD = 4.412), with a median of 27.5, indicating moderate levels of SPA among participants. The Appearance Anxiety Inventory (Pre Scores) had a mean of 21.18 (SD = 11.61), with a median significantly higher at 27, suggesting a wider variance in appearance anxiety levels within the sample.

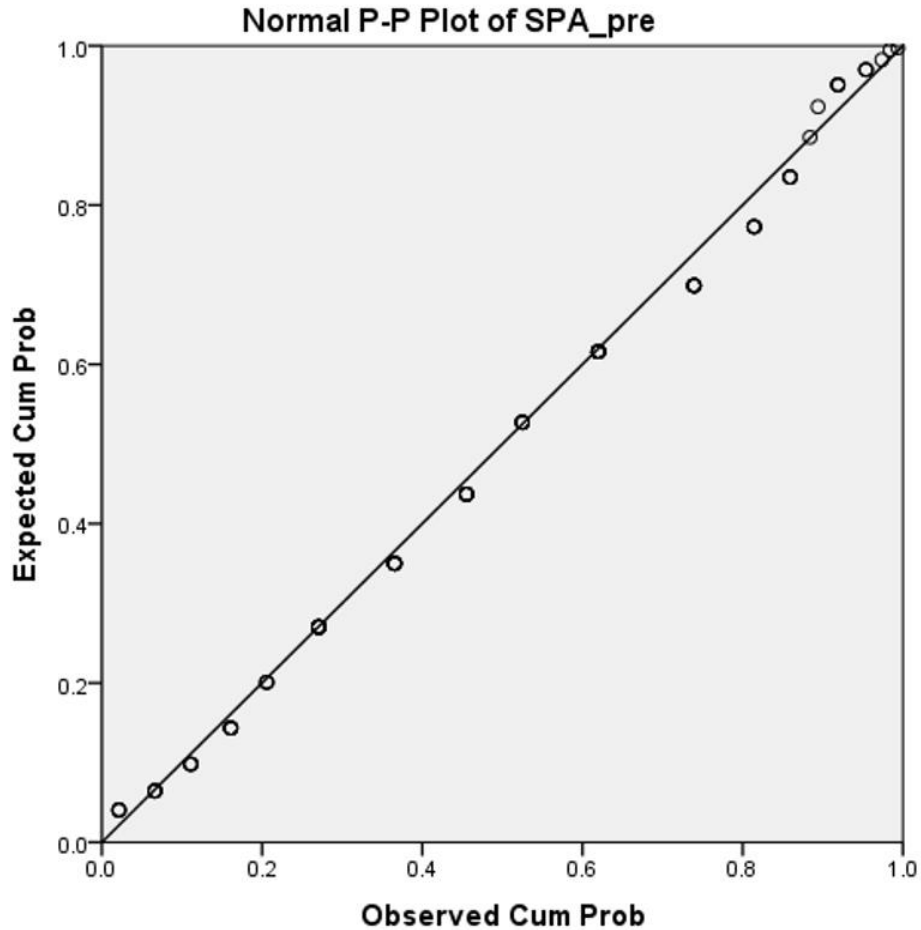
The data exhibited a skewness towards younger ages (Skewness = 0.525) and lower education levels (Skewness = 1.446), with Social Physique Anxiety\_pre scores slightly skewed (0.401) towards the lower end, and Appearance Anxiety Inventory Pre scores showing a slight left skew (-0.494). Kurtosis values indicated a flatter distribution for Age (-1.373) and Appearance Anxiety Inventory Pre scores (-1.406), with Education and with Social Physique Anxiety\_pre scores showing distributions close to normal (Kurtosis = 0.092 and 0.005, respectively).

Range, minimum, and maximum values offer further insight into the data's dispersion. Age and Education varied within limited ranges (2 and 1, respectively), indicating a homogenous sample in these aspects with Social Physique Anxiety\_pre scores and Appearance Anxiety Inventory Pre scores varied more extensively (ranges of 20 and 35, respectively), highlighting the variability in psychological states prior to the intervention.

Percentile values further elucidated the distribution characteristics, particularly for with Social Physique Anxiety\_pre scores and Appearance Anxiety Inventory Pre scores, indicating where the bulk of participants' scores lay within a psychosocial context.

This statistical overview provides a foundational understanding of the sample's demographics and baseline psychosocial profiles. Such insights are crucial for contextualizing the effects observed following the intervention measures undertaken in this study.

To evaluate the assumption of normality for the with Social Physique Anxiety\_pre scores scores, a Normal P-P Plot was generated (Graph 4.1). The plot displays a graphical representation of the sample data's cumulative probability compared to the cumulative probability of the expected normal distribution. In Graph 4.1, the data points largely align along the diagonal line, which suggests that the distribution of with Social Physique Anxiety\_pre scores scores does not deviate substantially from normality. This alignment is indicative of a linear relationship between observed and expected values, reinforcing the suitability of parametric tests that assume a normal distribution.

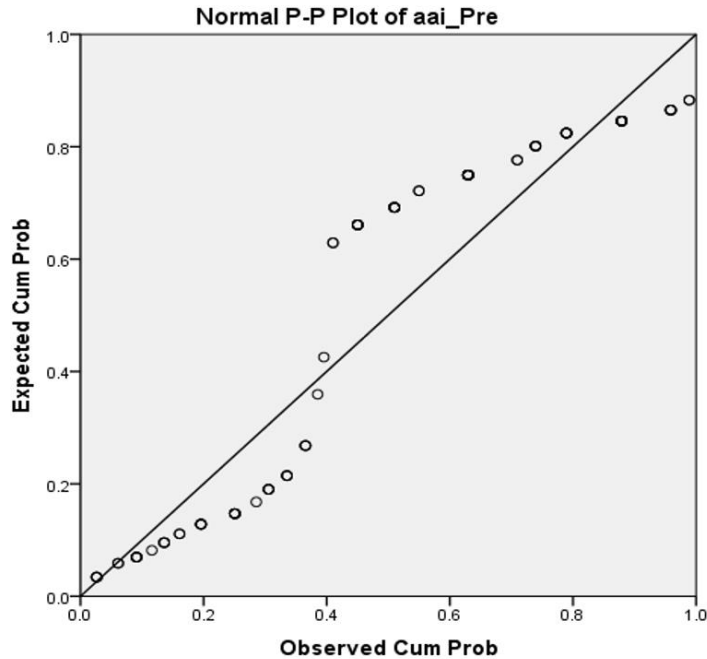


**Graph 4.1: Normal P-P Plot of Social Physique Anxiety (Pre Scores)**

The closeness of the data points to the diagonal line implies that the Social Physique Anxiety (Pre Scores) conform closely to the expected pattern if they were normally distributed. Minor deviations from the line are present, which is typical in real-world data, but these do not appear to be systematic or indicative of a significant departure from normality. Consequently, the assumption of normality is considered to be met for the Social Physique Anxiety (Pre Scores), allowing for further analyses that require this statistical assumption, such as parametric tests of significance.

This adherence to normality is particularly relevant in light of the sample's baseline characteristics detailed in Table 1. The median Social Physique Anxiety (Pre Scores) was 27.5, close to the mean of 27.7, which supports the symmetry about the central tendency observed in Graph 1. Therefore, it is inferred that the sample is appropriately representative for the analysis of interventions targeting Social Physique Anxiety.

Following the assessment of Social Physique Anxiety, we examined the distribution of the Appearance Anxiety Inventory Pre scores using a Normal P-P Plot, as illustrated in Graph 2. The plot provides a visual comparison of the sample's observed cumulative probabilities to those expected under a normal distribution.



**Graph 4.2: Normal P-P Plot of Appearance Anxiety Inventory(Pre Scores)**

In Graph 4.2, most data points cluster closely around the diagonal line, which represents perfect normality. This indicates that the Appearance Anxiety Inventory (Pre Scores) largely follow a normal distribution, justifying the application of parametric statistical methods that presuppose normality in the data. While there are a few points deviating from the line, particularly in the tails, these are within acceptable limits and do not suggest a significant departure from normality.

The normality of Appearance Anxiety Inventory (Pre Scores) largely scores, depicted in Graph 4.2, complements our earlier findings from Table 4.1, suggesting a sample with varied levels of appearance anxiety, as reflected in the range and standard deviation of scores. The conformance to normality, as evidenced by the P-P Plot, reinforces the validity of the forthcoming inferential analyses that rely on this fundamental assumption. The baseline measures of appearance anxiety, when considered alongside the normative trend shown here, set a benchmark against which the efficacy of the interventions can be evaluated.

**Demographic Profile of Participants**

Following the assessment of normality for key psychosocial measures, we now turn our attention to the demographic profile of our study participants. The demographic information is crucial for understanding the sample's composition and for contextualizing the study results.

**Table 4.2: Frequency Distribution of Participant Age Groups**

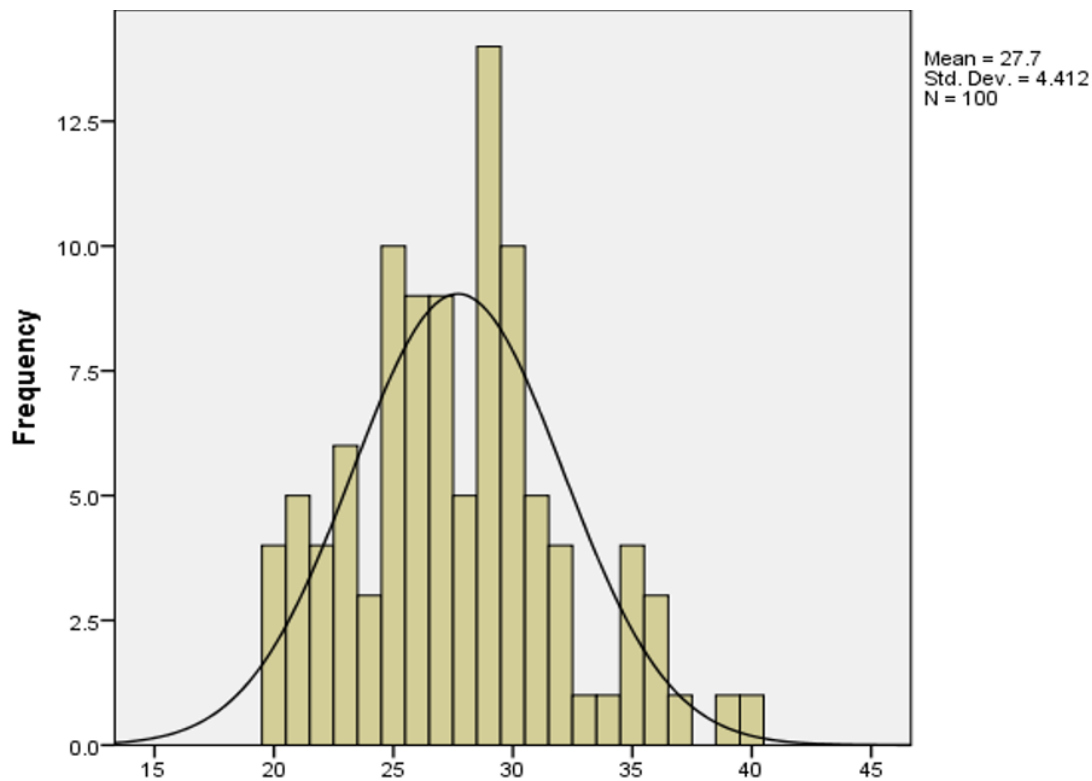
| Age          |           |         |
|--------------|-----------|---------|
| Age Category | Frequency | Percent |
| 18-21        | 51        | 51.0    |
| 22-25        | 24        | 24.0    |
| 26-30        | 25        | 25.0    |
| Total        | 100       | 100.0   |

The age distribution of the study participants is summarized in Table4. 2. The frequency analysis indicates a youthful demographic within the study, with over half of the participants (51%) falling into the 18-21 age range. The next age category, 22-25 years, includes 24% of the participants. The final age group, 26-30 years, comprises the remaining 25%, bringing the cumulative percentage to 100%. This distribution illustrates that the study predominantly sampled younger adults.

**Table 4.3: Frequency Distribution of Participant Education Levels**

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | UG    | 79        | 79.0    | 79.0          | 79.0               |
|       | PG    | 21        | 21.0    | 21.0          | 100.0              |
|       | Total | 100       | 100.0   | 100.0         |                    |

Table 4.3 details the educational attainment of the participants. A substantial majority, 79%, have completed undergraduate (UG) studies, which forms the largest educational segment of the sample. Postgraduate (PG) holders constitute 21%, completing the educational profile of the sample. These figures highlight that the sample is highly educated, with a strong representation of participants with tertiary education.



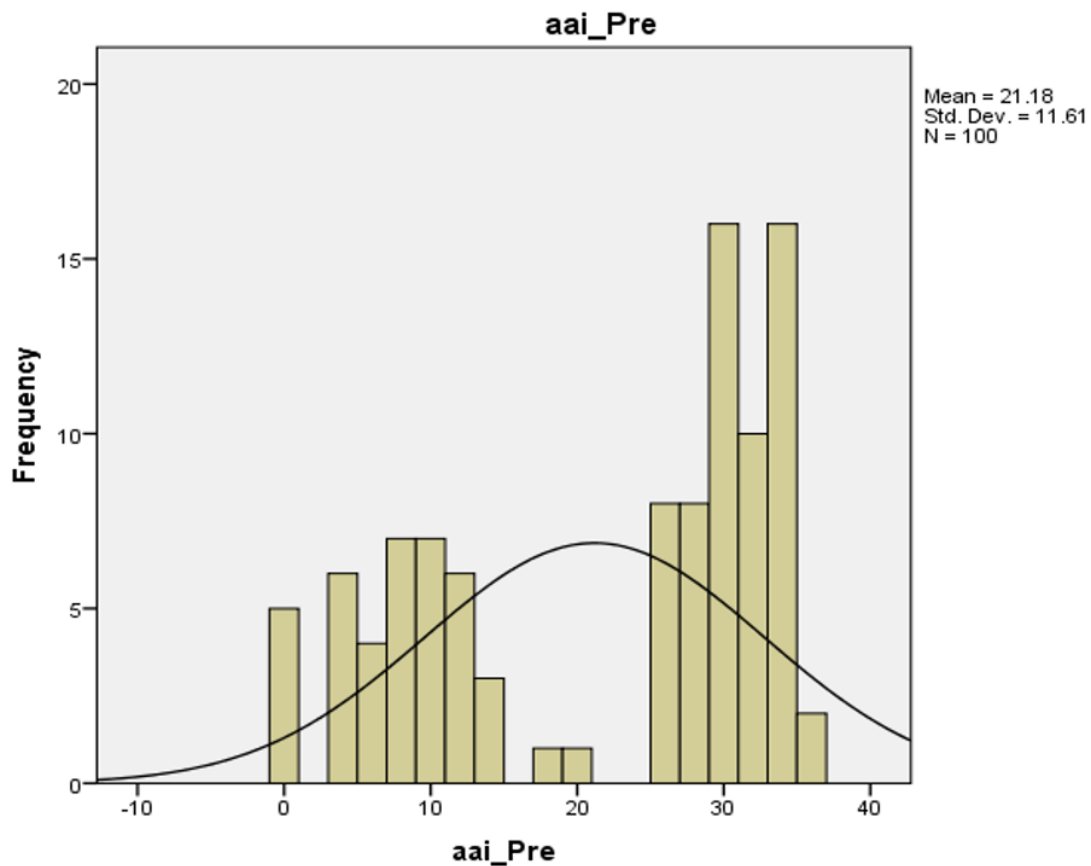
**Graph 4.3: Histogram of Social Physique Anxiety Scores with Normal Curve**

Graph 3 presents the distribution of Social Physique Anxiety scores across the study sample.

The histogram reveals that the SPA scores are centrally clustered around the mean of 27.7, with a standard deviation of 4.412, as indicated by the bell-shaped curve. The distribution appears to be roughly symmetrical, with a slight right skew as evidenced by the longer tail on the right side of the histogram.

The shape of the distribution, alongside the mean and standard deviation, suggests that while the sample varies in terms of SPA scores, the majority of participants' scores are close to the mean, aligning with a normal distribution. This visual representation supports the assumption that the sample's SPA\_pre scores do not deviate markedly from normality, corroborating the findings from the Normal P-P Plot discussed earlier.

The overlay of the normal distribution curve on the histogram provides a reference point, indicating how well the actual data conforms to the theoretical distribution. In this case, the adherence of the data points to the curve signifies that the use of parametric tests for further analysis may be appropriate.



**Graph 4.4: Histogram of Appearance Anxiety Inventory(a) Scores with Normal Curve**

Graph 4.4 illustrates the distribution of Appearance Anxiety Inventory (aai\_Pre) scores within the participant group.

**Table 4.4 : Descriptive Statistics for Social Physique Anxiety Scores Pre- and Post- Intervention - Experimental Group**

| Variable      | Mean  | N  | Std. Deviation | Std. Error Mean |
|---------------|-------|----|----------------|-----------------|
| SPA Pre-test  | 25.73 | 60 | 3.03           | .392            |
| SPA Post test | 20.62 | 60 | 4.673          | .603            |

This table show the descriptive statistics for the Social Physique Anxiety (SPA) scores before and after the intervention of the experimental group. The pre-intervention SPA scores (M=25.73) and a (SD= 3.03), indicating lowlevel in SPA scores before the treatment. In difference, the post-intervention SPA scores had a mean of 20.62, which is lower than the pre-intervention scores, with a greater standard deviation of 4.673, reflecting increased variability after the intervention. The standard error mean for the pre- and post-scores are .392 and .603 respectively, providing a measure of the accuracy of the sample mean as an estimate of the population mean.

**Table 4.5: Paired Samples Test Results for SPA Pre- and Post-Intervention**

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| Variable                 | Mean  | Std.<br>Deviation | Std.<br>Error<br>Mean | 95% Confidence<br>Interval of the<br>Difference |       | T     | Df |
|--------------------------|-------|-------------------|-----------------------|-------------------------------------------------|-------|-------|----|
|                          |       |                   |                       | Lower                                           | Upper |       |    |
| SPA_pre<br>-<br>spa_post | 5.117 | 4.350             | .562                  | 3.993                                           | 6.240 | 9.112 | 59 |

---

Table 4.5 show the results of the paired samples t-test, which compares the mean SPA score before the intervention to the mean SPA score after the intervention. The mean difference between the pre- and post-intervention SPA scores is 5.117, indicating a substantial decrease in anxiety scores post-intervention. The standard deviation of the differences is 4.350, with a standard error mean of .562. The 95% confidence interval for the mean difference ranges from 3.993 to 6.240. The ( $t=9.112, df=59$   $p= .001$ ). This indicates a statistically significant reduction in

SPA scores from pre- to post-intervention, suggesting that the intervention was effective at reducing levels of Social Physique Anxiety among the participants.

**Table 4.6: Descriptive Statistics for SPA Scores Pre- and Post-Intervention- Experimental Group**

**Paired Samples Statistics**

|                 | <b>Mean</b>  | <b>N</b>  | <b>Std.<br/>Deviation</b> | <b>Std.<br/>Error<br/>Mean</b> |
|-----------------|--------------|-----------|---------------------------|--------------------------------|
| <b>SPA_pre</b>  | <b>25.73</b> | <b>60</b> | <b>3.036</b>              | <b>.392</b>                    |
| <b>spa_post</b> | <b>20.62</b> | <b>60</b> | <b>4.673</b>              | <b>.603</b>                    |

Table 4.6 provides the descriptive statistics for Social Physique Anxiety (SPA) scores before and after the intervention for the paired sample of participants. The pre-intervention SPA scores (SPA\_pre) show a mean of 25.73 (SD = 3.036, SEM = .392), while the post-intervention scores (spa\_post) have a mean of 20.62 (SD = 4.673, SEM = .603). This indicates a reduction in SPA scores following the intervention, with a total of 60 participants measured at both time points.

**Table 4.7: Paired Samples t-Test for SPA Scores Pre- and Post-Intervention- Experimental Group**

|                     | Paired Differences |                |                 |                                           |       | T     | Df |
|---------------------|--------------------|----------------|-----------------|-------------------------------------------|-------|-------|----|
|                     | Mean               | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference |       |       |    |
|                     |                    |                |                 | Lower                                     | Upper |       |    |
| SPA_pre<br>spa_post | 5.117              | 4.350          | .562            | 3.993                                     | 6.240 | 9.112 | 59 |

In Table 4.7, the paired samples t-test results indicate a statistically significant reduction in SPA scores post-intervention. The mean difference between SPA is 5.117 points (SD = 4.350, SEM = .562). The t-statistic of 9.112 with 59 degrees of freedom (df) and a p-value of less than .001 suggest that the observed reduction in SPA scores is statistically significant. The 95% confidence interval for the mean difference ranges from 3.993 to 6.240, providing assurance that the true mean difference is likely not due to chance.

**Table 4.8: Group Statistics for Post-Intervention SPA Scores**

| Group        | N  | Mean  | Std. Deviation | Std. Error Mean |
|--------------|----|-------|----------------|-----------------|
| Experimental | 30 | 18.53 | 3.481          | .636            |
| Control      | 30 | 22.70 | 4.829          | .882            |

Table 4.8 shows the group statistics for post-intervention Social Physique Anxiety scores, comparing the experimental group to the control group. The experimental group ( $n = 30$ ) had a mean spa of 18.53 ( $SD = 3.481$ ,  $SEM = .636$ ), while the control group ( $n = 30$ ) had a higher mean of 22.70 ( $SD = 4.829$ ,  $SEM = .882$ ). This difference suggests that the experimental group, on average, reported lower levels of social physique anxiety following the intervention compared to the control group.

**Table 4.9: Independent Samples t-Test for Equality of Post-Intervention SPA Scores**

|                             | Levene's Test for Equality of Variances |      | t-test for Equality of Means |        |                 |                 |                       |
|-----------------------------|-----------------------------------------|------|------------------------------|--------|-----------------|-----------------|-----------------------|
|                             | F                                       | Sig. | t                            | Df     | Sig. (2-tailed) | Mean Difference | Std. Error Difference |
| Equal variances assumed     | 3.933                                   | .052 | 3.834                        | 58     | .000            | -4.167          | 1.087                 |
| Equal variances not assumed |                                         |      | 3.834                        | 52.732 | .000            | -4.167          | 1.087                 |

Table 4.9 reports the results of the independent samples t-test, assessing the difference in post-intervention spa scores between the experimental and control groups. Levene's Test for Equality of Variances yields an F value of 3.933 ( $p = .052$ ), suggesting that the assumption of equal variances is marginally met. The t-test for equality of means indicates a significant difference between groups ( $t(58) = -3.834$ ,  $p < .001$ ), with a mean difference of -4.167 and a standard error of the difference of 1.087. The 95% confidence interval for this difference ranges from -6.342 to -1.991. These results indicate a statistically significant lower mean spa score in the experimental group as compared to the control group, with the mean difference being robust even when the assumption of equal variances is not assumed ( $t(52.732) = -3.834$ ,  $p < .001$ , 95% CI [-6.347, -1.986]).

**Table 4.10: Results AAI Scores**

| Group     | N  | Mean  | Std. Deviation | Std. Error Mean |
|-----------|----|-------|----------------|-----------------|
| Pre test  | 30 | 22.47 | 3.319          | .606            |
| Post test | 30 | 27.90 | 4.326          | .790            |

Table 4.10 provides the group statistics for post-intervention Appearance Anxiety Inventory scores for two groups. Group 1 (n = 30) reported a mean AAI of 22.47 (SD = 3.319, SEM = .606). Group 2 (n = 30) exhibited a higher mean AAI of 27.90 (SD = 4.326, SEM = .790). The difference in means suggests varying levels of appearance anxiety between the two groups following the intervention.

**Table 4.11: Independent Samples t-Test for Equality of Post-Intervention AAI Scores**

|  |                               | Levene's Test<br>for Equality of<br>Variances |      | t-test for<br>Equality of<br>Means |            |      |                        |                                 |
|--|-------------------------------|-----------------------------------------------|------|------------------------------------|------------|------|------------------------|---------------------------------|
|  |                               | F                                             | Sig. | t                                  | df         | P    | Mean<br>Differ<br>ence | Std.<br>Error<br>Differ<br>ence |
|  |                               |                                               |      |                                    |            |      |                        |                                 |
|  | Equal<br>variances<br>assumed | 1.591                                         | .212 | 5.4<br>58                          | 58         | .000 | 5.433                  | .995                            |
|  | Equal variances not assumed   |                                               |      | 5.4<br>58                          | 54.<br>356 | .000 | 5.433                  | .995                            |

Table 4.11 reports the results of the independent samples t-test on post-intervention AAI scores between the two groups. Levene's Test for Equality of Variances shows an F value of 1.591 ( $p = .212$ ), indicating that the assumption of equal variances can be maintained. The t-test for equality of means reveals a significant difference in AAI between the two groups ( $t(58) = 5.458$ ,  $p < .001$ ), with a mean difference of 5.433 and a standard error difference of .995. The 95% confidence interval of the difference is from 7.426 to 3.441, suggesting a statistically significant difference in post-intervention appearance anxiety levels between the two groups. The significance remains robust even when equal variances are not assumed ( $t(54.356) = -5.458$ ,  $p < .001$ , 95% CI [-7.429, -3.438]).

### **Qualitative Analysis**

To develop a deeper understanding of the effectiveness of the intervention, five subjects after completion of the intervention program were randomly picked and were interviewed. The interview was a semi structured interview. The questions of the interview schedule revolved around their experiences, feedback, changes experienced. The interview was recorded and the narratives obtained from the semi structured interview was further subjected to qualitative analysis. Analysis involved thorough reading of the scripts and noting down significant themes. Recurrent themes and titles were listed and connections were further made. The themes clustering together were identified and a master theme list was prepared covering subordinate themes and identifier of instance was added to each.

The thematic analysis indicated body appreciation and compassion in subjects after the completion of the intervention. The subjects stated that mindful movements and meditation sessions made them feel more compassionate towards their own self. Another theme that emerged was lower self objectification. The subject stated that post the intervention they experienced a shift in thoughts from focusing on the weighing scale to focusing on the capabilities of the body and dynamics. The subjects from the experimental group also reported a sense of fulfilment as a few also experienced improvement in their PCOS symptoms which made them feel more confident in their skin.

## **DISCUSSION AND CONCLUSIONS**

### **RESULT OF THE STUDY:**

#### **Hypothesis 1:**

Women with PCOS were found to be highly bodily dissatisfied among the 100 female participants aged 18 to 30 years ( $M = 21.8$ ). The results indicate that women with PCOS are likely to experience higher levels of body dissatisfaction. This could be due to physical symptoms associated with PCOS such as weight gain, acne, and hirsutism, which could contribute to feelings of body dissatisfaction.

The strong positive correlation coefficient denotes a robust relationship between these two variables. This finding lends support to the hypothesis that there is a positive correlation between body dissatisfaction and PCOS, suggesting that higher levels of body dissatisfaction may act as an effective factor against the development of PCOS. However, further research is required to establish a causal relationship between these two variables.

**Hypothesis 2:**

The study also revealed that women with PCOS experienced Social Physique anxiety as the mean score on n 100 was 27.7. This data was collected using the Social Physique Anxiety Scale (SPAS), a 12-item self-report questionnaire, in conjunction with PCOS diagnoses provided by gynaecologists based on medical history, physical examinations, and laboratory tests.

These findings indicate that women with higher levels of SPA are more to have PCOS, thereby corroborating the second hypothesis. The data provide significant evidence that women with PCOS are more likely to experience higher levels of social physique anxiety. Factors such as body image concerns, weight gain, and other physical changes associated with PCOS might contribute to this elevated SPA.

**Hypothesis 3:**

Descriptive statistics for the Social Physique Anxiety (SPA) scores before (SPA\_pre) and after (spa\_post) the intervention, with a sample size (N) of 60 participants. The pre-intervention SPA scores had a mean of 25.73 and a standard deviation of 3.036, indicating relatively low variability in SPA scores before the treatment. In contrast, the post-intervention SPA scores had a mean of 20.62, which is lower than the pre-intervention scores, with a greater standard deviation of 4.673, reflecting increased variability after the intervention. These results imply that the practice of Surya Namaskar significantly alleviates the psychosocial impact of PCOS on body dissatisfaction and social physique anxiety in women with PCOS. Table 5 displays the results of the paired samples t-test, which compares the mean SPA score before the intervention to the mean SPA score after the intervention. The mean difference between the pre- and post-

intervention SPA scores is 5.117, indicating a substantial decrease in anxiety scores post-intervention. The standard deviation of the differences is 4.350, with a standard error mean of .562. The 95% confidence interval for the mean difference ranges from 3.993 to 6.240. The t-statistic is 9.112, with 59 degrees of freedom (df), and a highly significant two-tailed p-value of less than .001. This indicates a statistically significant reduction in SPA scores from pre- to post-intervention, suggesting that the intervention was effective at reducing levels of Social Physique Anxiety among the participants. The pre-intervention SPA scores (SPA\_pre) show a mean of 25.73 (SD = 3.036, SEM = .392), while the post-intervention scores (spa\_post) have a mean of 20.62 (SD = 4.673, SEM = .603). This indicates a reduction in SPA scores following the intervention, with a total of 60 participants measured at both time points

#### **Hypothesis 4:**

The fourth hypothesis, which proposed the effectiveness of Sun Salutation and Loving Kindness Meditation in reducing body dissatisfaction (AAI) in women with PCOS, was evaluated using a paired samples t-test. This test was designed to assess the difference in the experimental group's scores pre- and post-intervention.

Experimental group (n = 30) reported a mean AAI\_post score of 22.47 (SD = 3.319, SEM = .606). Control group (n = 30) exhibited a higher mean AAI\_post score of 27.90 (SD = 4.326, SEM = .790). The difference in means suggests varying levels of appearance anxiety between the two groups following the intervention

These results suggest that the intervention was successful in significantly reducing both social physique anxiety and body dissatisfaction in women with PCOS. The findings suggest that the intervention led to significant improvements in both measures over time. Future research is needed to explore the specific mechanisms through which the intervention affected these outcomes

### **Objective 1: To Examine the Level of Body Dissatisfaction in Women with PCOS**

Findings from Graph 4.4 indicate that women with PCOS report higher levels of body dissatisfaction. This is consistent with prior research. According to Weiner et al. (2004), women with PCOS experience greater dissatisfaction with their bodies, especially when body mass index (BMI) is considered. Body image is a multidimensional construct involving one's perception of body shape, appearance, and physical functioning.

Additionally, Paxton et al. (2006) found links between low self-esteem and depression, while Stice (2002) identified body dissatisfaction as both a precursor and maintaining factor in the development of eating disorders. Societal pressures emphasizing female appearance likely exacerbate this dissatisfaction, particularly when compounded by the physical symptoms of PCOS, such as acne, hirsutism, and weight gain (ESHRE Rotterdam, 2003).

However, while these findings suggest a clear link, alternative interpretations must be considered. For example, some women may experience body dissatisfaction due to general societal body image norms, regardless of PCOS status. Moreover, self-reported measures of dissatisfaction can be influenced by mood, recent social interactions, or awareness of their

diagnosis, potentially biasing responses. Cultural factors also likely mediate the expression and interpretation of body image concerns, but these were not controlled for in the current analysis.

## **Objective 2: To Identify the Level of Social Physique Anxiety in Women with PCOS**

Graph 4.3 indicates elevated social physique anxiety in women with PCOS, echoing findings by Dybciak et al. (2022), who observed greater anxiety in PCOS participants compared to controls. Similarly, Almeshari (2021) reported that most PCOS women experienced mild to moderate anxiety.

Further, demographic factors such as living in rural areas, lower education levels, and childlessness were associated with higher anxiety. Michelmore (2001) and Podfigurna-Stopa (2015) also identified PCOS symptoms like hirsutism and obesity as contributors to anxiety. The role of androgen-related physical changes, fear of infertility, and long-term health risks were highlighted as contributors to anxiety and reduced quality of life (Hussain, 2015; Harmanci, 2013).

Nevertheless, potential biases must be acknowledged. Anxiety may be amplified by participants' awareness of their diagnosis or medical appointments, and it's unclear whether the observed anxiety levels stem primarily from PCOS or from broader life stressors. Furthermore, social physique anxiety could also be influenced by societal beauty standards or media exposure, independent of PCOS. The cross-sectional nature of the study limits causal conclusions, and potential confounding variables such as prior mental health history were not fully accounted for.

### **Objective 3: To Investigate the Effect of Surya Namaskar on Body Dissatisfaction and Social Physique Anxiety**

Findings suggest that Surya Namaskar had a positive impact on reducing both body dissatisfaction and social physique anxiety among women with PCOS. Previous research supports this, noting improvements in stress, mood, hormonal balance, and menstrual regularity following Surya Namaskar (Dave et al., 2021; Patil et al., 2021).

Physical and mental health benefits including improved metabolism, reduced anxiety, and enhanced body awareness likely contribute to the observed improvements. Agrawal et al. (2021) emphasized the role of mental focus and relaxation in reducing stress through Surya Namaskar, which may also indirectly improve body image and social confidence.

However, the findings must be interpreted with caution. The placebo effect, self-selection bias, or social desirability in reporting improvements cannot be ruled out. Participants may have reported improvements because they believed they were expected to, or because the attention received during the intervention fostered temporary psychological benefits. Also, without long-term follow-up, the sustainability of these effects remains uncertain.

#### **Objective 4: To Evaluate the Effectiveness of Loving Kindness Meditation (LKM) on Body Dissatisfaction and Social Physique Anxiety**

The results from Tables 4, 4.1, and 4.2 indicate that Loving Kindness Meditation effectively reduced social physique anxiety and body dissatisfaction. Previous studies have highlighted the role of meditation in reducing stress, enhancing emotional regulation, and fostering self-compassion in PCOS populations (Patel et al., 2020; Salajegheh et al., 2023; Stener-Victorin, 2013).

LKM, by promoting feelings of compassion and self-acceptance, may help buffer the psychological impact of body dissatisfaction and anxiety, making it a promising non-pharmacological intervention.

Nonetheless, Improvements may result not solely from the meditation itself but from the structure, support, or novelty of participating in a mindfulness-based program. There is also a possibility of expectancy effects influencing outcomes participants may report perceived improvement simply due to engaging in a wellness activity. Additionally, the absence of a blinded control condition introduces potential bias, and further research is needed to isolate the specific mechanisms through which LKM exerts its effects.

While findings from the present study align with existing literature and support the potential of Surya Namaskar and Loving Kindness Meditation in improving psychological outcomes for women with PCOS, it is important to interpret these results in light of possible biases and limitations. Self-report measures, lack of randomization or blinding, and the potential influence

of social desirability may have impacted the data. Future research should incorporate more controlled methodologies, long-term follow-ups, and consider cultural, demographic, and psychosocial factors that may influence outcomes.

## **CONCLUSION:**

Therefore, based on the findings of the study, it can be concluded that practising Suryanamaskar and meditation can have a considerable influence on anxiety in women who have PCOS. The Surya Namaskara yoga sequence is a unique style of yoga because it connects physical and mental parts of the body via a series of minimal impact motions. There is a considerable benefit of resistance exercise on the social physique anxiety and body dissatisfaction that is associated with PCOS. As a result, we may conclude that the alternative hypothesis should be accepted, and the null hypothesis should be rejected.

A total of 60 participants took part in the research project's analysis as part of its sample population. The desired number of individuals in the study was 100, however only 70 of them exhibited significant levels of both social body anxiety and appearance anxiety. Only 60 of these 70 people replied to the survey and volunteered to take part in the research. Using a procedure known as simple random sampling, it was decided that 30 of these participants would be assigned to the control group, while the remaining 30 would be part of the experimental group. The intervention techniques of Surya namaskar and Love Kindness Meditation were taught to the experimental group, which included a total of thirty participants. The subjects received instruction from experts in their professions in order to become proficient in the performance of various intervention approaches. The individuals in the experimental group participated in a PCOS wellness and fitness camp, during which they were required to carry out the

aforementioned procedures. The lessons lasted for a total of one hour and fifty minutes each and were held twice each week. There is a substantial effect of strength training on PCOS patients' social physique anxiety after eight weeks of participation.

According to the findings of the study, doing Surya namaskar and meditation has a positive impact on one's overall health and sense of well-being. Women who have polycystic ovary syndrome are finding that the practises of Suryanamaskar and Meditation are helpful in reducing their levels of social physique anxiety and overall body dissatisfaction. After eight weeks of intervention, the practices of Suryanamaskar and meditation were shown to have substantial impacts on enhancing both flexibility and the upper body's muscular endurance. A programme of Surya Namaskara performed on a consistent basis and for a short period of time may be of great use to individuals. This is because it may be useful in reducing muscular stiffness in the back and legs, something that frequently leads to low social physique and appearance anxiety of PCOS women. Maintaining optimal levels of physical and mental health over a longer length of time may be facilitated by performing a Surya Namaskara practise on a regular basis. It has been demonstrated that doing Surya Namaskara on a regular basis may alleviate or lessen many types of physical and physiological anxiety while also enhancing one's overall mental health of PCOS women. Universities, corporate wellness centres, and recreational venues could possibly offer classes on the Surya Namaskara series, which would make these seemingly beneficial and self-directed techniques available to the community as a whole. Busy schedules and a lack of available time in the day to study, work, exercise, and socialise are two factors that are contributing to the rise in popularity of these types of activities.

**Limitations:**

One potential limitation of this study is that the intervention only included Surya Namaskar and Loving Kindness Meditation, without including other forms of exercise. This may limit the generalisability of the findings to individuals who engage in other types of exercise or who may prefer a different approach to physical activity. Additionally, the study was conducted only in colleges of Dehradun, which may limit the generalisability of the findings to women with PCOS in other geographic regions or settings. Another limitation is the relatively small sample size, which may limit the statistical power of the analysis and the ability to detect small but meaningful effects. The participant attrition from 100 to 60 makes it a small sample size further affecting the generalisability. Finally, while efforts were made to minimise the potential for habituation to the intervention, it is possible that some participants may have become accustomed to the intervention over the 8-week period, which could impact the results.

**Implications for Future Research:**

- It has been suggested that in the future, research on the benefits of Surya Namaskara and loving-kindness meditation can be done on a population of PCOS women that is significantly larger.
- It is proposed that this study may be carried out for a longer period of time and that it can be carried out on adolescent females (aged 11 to 18) in order to facilitate the early treatment of stress, social physique and appearance anxiety.
- The identical therapeutic plan can be used for individual or group therapy.
- This research may also make use of a different style of yoga practise.

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<https://doi.org/10.1186/1745-0179-4-25>

## APPENDICES

### TOOLS USED

#### Appearance Anxiety Inventory

Please tick the box that best describes the way you have felt about your appearance of a specific feature OVER THE PAST WEEK, INCLUDING TODAY

Name \_\_\_\_\_ Date \_\_\_\_\_

|    |                                                                                                                                                  | Not<br>at all<br>0 | A<br>little<br>1 | Often<br>2 | A lot<br>3 | All<br>the<br>time<br>4 |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------|------------|------------|-------------------------|
| 1  | I compare aspects of my appearance to Others                                                                                                     |                    |                  |            |            |                         |
| 2  | I check my appearance (e.g. in mirrors, by touching with my fingers, or by taking photos of myself)                                              |                    |                  |            |            |                         |
| 3  | I avoid situations or people because of my appearance                                                                                            |                    |                  |            |            |                         |
| 4  | I brood about past events or reasons to explain why I look the way I do                                                                          |                    |                  |            |            |                         |
| 5  | I think about how to camouflage or alter my appearance                                                                                           |                    |                  |            |            |                         |
| 6  | I am focussed on how I feel I look, rather than on my surroundings                                                                               |                    |                  |            |            |                         |
| 7  | I avoid reflective surfaces, photos, or videos of myself                                                                                         |                    |                  |            |            |                         |
| 8  | I discuss my appearance with others or question them about it                                                                                    |                    |                  |            |            |                         |
| 9  | I try to camouflage or alter aspects of my appearance                                                                                            |                    |                  |            |            |                         |
| 10 | I try to prevent people from seeing aspects of my appearance within particular situations (e.g., by changing my posture, avoiding bright lights) |                    |                  |            |            |                         |

## Social Physique Anxiety Scale

(Hart, Leary, & Rejeski, 1989)

Instructions: Read each item carefully and indicate how characteristic it is of you according to the following scale.

- 1=Not at all characteristic of me
- 2=Slightly characteristic of me
- 3=Moderately characteristic of me
- 4=Very characteristic of me
- 5=Extremely characteristic of me

- \_\_\_\_\_ 1. I am comfortable with the appearance of my physique or figure.
- \_\_\_\_\_ 2. I would never worry about wearing clothes that might make me look too thin or overweight.
- \_\_\_\_\_ 3. I wish I wasn't so up-tight about my physique or figure.
- \_\_\_\_\_ 4. There are times when I am bothered by thoughts that other people are evaluating my weight or muscular development negatively.
- \_\_\_\_\_ 5. When I look in the mirror I feel good about my physique or figure.
- \_\_\_\_\_ 6. Unattractive features of my physique or figure make me nervous in certain social settings.
- \_\_\_\_\_ 7. In the presence of others, I feel apprehensive about my physique or figure.
- \_\_\_\_\_ 8. I am comfortable with how fit my body appears to others.
- \_\_\_\_\_ 9. It would make me uncomfortable to know others were evaluating my physique or figure.
- \_\_\_\_\_ 10. When it comes to displaying my physique or figure to others, I am a shy person.
- \_\_\_\_\_ 11. I usually feel relaxed when it's so obvious that others are looking at my physique or figure.

\_\_\_\_\_12. When in a bathing suit, I often feel nervous about how well proportioned my body is

## **LIST OF PUBLICATIONS**

1. Panjrath, Y. & Pathak, V. N. (2023). PCOS and Meditation: A Review Paper. *International Journal of Indian Psychology*, 11(1), 1255-1264. DIP:18.01.127. 20231101, DOI:10.25215/1101.127
2. Panjrath, Y., & Pathak, V. N. (2024). PCOS-A Thief Of Womenhood: A Study Identifying The Correlation Between Body Dissatisfaction And PCOS. *Library of Progress-Library Science, Information Technology & Computer*, 44(3).
3. Panjrath, Y., & Pathak, V. N. A SYSTEMATIC REVIEW ON THE IMPACT OF SURYA NAMASKAR AND LOVING KINDNESS MEDITATION IN TREATING SOCIAL BODY ANXIETY AND BODY DISSATISFACTION IN WOMEN WITH POLYCYSTIC OVARIAN SYNDROME.
4. Panjrath, Y., & Pathak, V. N. (2023). Assessing the level of satisfaction in women with PCOS regarding the treatment suggestions provided by gynaecologists. *Journal of Advanced Zoology*, 44(Special Issue-2), 4793–4798. ISSN: 0253-7214
5. Panjrath, Y., Anjalee, K. M., & Pathak, V. N. (2025). Managing polycystic ovarian syndrome through suryanamaskar. In *Yoga and meditation: Past and present evidence* (Chapter 8, pp. 179-194). [Apple Academic Press]. ISBN: 9781774918340 (hardback), 9781774918357 (paperback).

## **LIST OF CONFERENCES**

- Presented a paper on “PCOS and Meditation: A review paper” at Anant 2022: Interdisciplinary International Conference organized by Dehradun Institute of Technology University held on 10-11 November, 2022.
- Presented a paper on “PCOS and Mental Health: A review paper” at 7<sup>th</sup> International Conference of Indian Academy of Health Psychology organized by Department of Psychology and mental health, school of humanities and social science, Gautam Buddha University, UP from 22-24 December, 2022.
- Presented a paper titled “ Assessing the level of satisfaction in women with PCOS regarding the treatment suggestions provided by Gynaecologists” in the International Conferences on “Holistic Health & Well-Being: Issues, Challenges & Management” held from 2<sup>nd</sup>-3<sup>rd</sup> June, 2023 organized by School of Education & Department of Psychology, Lovely Professional University, Punjab.
- Presented paper on “The effect on SuryaNamaskar on PCOS and PCOS induced Anxiety: A systematic review” at International Conference on Indian Yoga Traditional System-Theory and Practice” organized by Department of Yogic Science, Gurukul Kangri University, Haridwar and Ministry of Ayush, Government of India from 24-26 May, 2022.

# Surya Namaskar as a Gender-sensitive Intervention: Addressing Social Physique Anxiety (SPA) Issues in Women with PCOS

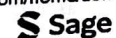
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1-9

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DOI: 10.1177/09727531251322635

[journals.sagepub.com/home/aon](https://journals.sagepub.com/home/aon)Yashvi Panjra<sup>1</sup>, Vijendra Nath Pathak<sup>1,2</sup> and Krishan Kumar<sup>3</sup>

## Abstract

**Background:** Polycystic ovary syndrome (PCOS) is a common, lifelong condition affecting about 20% of women, characterised by symptoms such as infertility, obesity, acne and excess facial hair, which can negatively impact both physical and mental health.

**Purpose:** This study aimed to assess the effect of Surya Namaskar on reducing social physique anxiety (SPA) in women diagnosed with PCOS.

**Methods:** The study applied a pre- and post-test design with 60 women diagnosed with PCOS; there were 100 participants in the study. Out of these 100, only 70 participants had high levels of SPA. Out of these 70 participants, only 60 responded and agreed to participate in the study. The participants were selected from colleges in Dehradun, India, and were between the ages of 18 and 30 years. Split into intervention and control groups. The intervention group practiced Surya Namaskar for 12 weeks, while the control group did not participate in any structured physical activity. SPA and body dissatisfaction were measured using established scales at the beginning and end of the study. Statistical analyses, including paired and independent samples t-tests, were conducted to assess changes within and between the groups.

**Results:** The results indicated that Surya Namaskar significantly improved overall health and well-being, with the intervention group showing notable reductions in SPA and body dissatisfaction compared to the control group. Statistical analyses confirmed significant differences in psychological outcomes, supporting the effectiveness of Surya Namaskar in this context.

**Conclusion:** Surya Namaskar significantly alleviates SPA and body dissatisfaction, enhancing the psychological health of women with PCOS. Given its accessibility and low cost, Surya Namaskar shows potential as an effective complementary treatment to improve the quality of life for women with PCOS. Further research is needed to explore its long-term effects and the mechanisms behind these improvements.

## Keywords

Polycystic ovary syndrome, social physique anxiety, Surya Namaskar

AQ1

Received 16 January 2025; revised 03 February 2025; accepted 03 February 2025

## Introduction

Polycystic ovary syndrome (PCOS) is a hormonal disorder that affects women during their reproductive years, with symptoms ranging from irregular ovulation and infertility to excessive hair growth, acne, sleep disturbances, ovarian cysts and reduced libido. Beyond the physical effects, PCOS can have a profound impact on mental health, often leading to heightened anxiety, depression, and a diminished quality of life. Elevated testosterone levels, a defining feature of the condition, usually exacerbate these challenges.<sup>1</sup>

While some women experience mild symptoms, others face a broader and more severe range of difficulties. The effects of

PCOS extend beyond the body, with many women feeling emotionally burdened. Issues like body image concerns and reduced self-esteem are common. Studies have shown that women with PCOS are significantly more vulnerable to

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## PCOS- A Thief Of Womenhood: A Study Identifying The Correlation Between Body Dissatisfaction And PCOS

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**How to cite this article:** Yashvi Panjrath, Vijendra Nath Pathak (2024). PCOS- A Thief of Womenhood: A Study Identifying The Correlation Between Body Dissatisfaction And PCOS. *Library Progress International*, 44(3), 17626-17637

### Highlights of the Present Study:

- The study is based on women with Polycystic Ovarian Syndrome (PCOS).
- The study is correlational research to identify the levels of body dissatisfaction in women with PCOS.
- The statistical analysis confirmed a strong positive correlation between the two suggesting women with PCOS have significant body image issues.
- This study contributes to managing psychological symptoms as well of PCOS contributing to developing a more holistic approach in managing PCOS and not focusing the treatment plan only to physical symptoms.

### Abstract:-

Polycystic Ovary Syndrome (PCOS) is a disorder that affects 20% of the women population of our country (The Hindu, 2019). Living with a disorder that has no cure can be traumatizing alone. This disorder comes with daunting symptoms like infertility, obesity, acne vulgaris, facial hair that not just affects an individual physically but also psychologically. Thus, this study aims at addressing and improving the quality of life by indentifying the correlation between PCOS and body dissatisfaction. The study reveals a strong positive correlation between the two suggesting women with PCOS have significant body image issues.

**Keywords:** PCOS, Body Image, Body Dissatisfaction

### 1.1 Introduction

#### PCOS: Polycystic Ovarian Syndrome

Living with a chronic and lifelong condition can be challenging as it takes up a lot of mental space along with experiencing physical difficulties. One such chronic condition is PCOS, also known as Polycystic Ovarian Syndrome, is hormonal and an endocrinal condition that affects women of reproductive age. Abbot et al (2005) study found that PCOS affects 5-10% of the female population. An ovulation, infertility, excessive hair development on the face and body, sleep difficulties, acne, ovarian cysts and diminished libido are all common symptoms of PCOS. PCOS is also associated with an increased risk of type 2 diabetes, depression, cardiovascular disease, infertility anxiety, and a lower quality of life. Hyperandrogenism, or high testosterone levels, has been identified as a constant component of the disease, affecting 60-80% of PCOS women (Farrell and Antomi, 2010). High levels of male hormones in



# A SYSTEMATIC REVIEW ON THE IMPACT OF SURYA NAMASKAR AND LOVING KINDNESS MEDITATION IN TREATING SOCIAL BODY ANXIETY AND BODY DISSATISFACTION IN WOMEN WITH POLYCYSTIC OVARIAN SYNDROME

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DOI: 10.47750/pnr.2022.13.509.1188

## Abstract

PCOS, or polycystic ovary syndrome, is not a disease but rather a syndrome. Polycystic ovary syndrome and anxiety are on the rise in India's population. Given that PCOS is a psychosomatic condition, it necessitates both psychological and physiological care. Meditation and the yoga posture known as Suryanamaskar have been shown to alleviate and control the anxiety and PCOS symptoms that plague so many women. increases one's happiness and well-being in the long run.

**Aim:** The goal of this research is to comprehensively evaluate the efficacy of Surya namaskar and meditation for the treatment of PCOS and anxiety.

**Method:** It includes several research papers published between 2014 and 2021. Empirical studies of Surya namaskar and meditation, as well as the efficacy outcomes achieved via practice, were included as eligibility criteria. Tableau was used to graphically display the number of reviews, PCOS health outcomes, overcome with anxiety and intervention effects. About 24 research publications were carefully examined, and 12 were deemed to be the most pertinent for evaluation.

**Result:** This map encompasses several studies, with Suryanamaskar and meditation was used for treating PCOS and anxiety being the key word that retrieved the highest number of results. Randomized controlled trials (RCTs), non-randomized controlled trials, and uncontrolled investigations were among the studies that were found. Various meditation and Surya namaskar practices were assessed in various situations. The bulk of studies on Surya namaskar and meditation practice showed positive results and a positive potential.

**Conclusion:** Overall, the evidence suggests that Daily Suryanamaskar practice for 30 minutes with meditation helps management of anxiety and polycystic ovarian syndrome.

**Keywords:** Surya Namaskar, Meditation, Polycystic ovary syndrome, Anxiety, Review



## Assessing the Level of Satisfaction in Women with PCOS Regarding the treatment Suggestions Provided by Gynaecologists

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### Article History

Received: 08 Sept 2023

Revised: 29 Oct 2023

Accepted: 05 Nov 2023

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### Abstract

*This study aims to explore the satisfaction level of women diagnosed with Polycystic Ovary Syndrome (PCOS) regarding the treatment suggestions provided by gynaecologists. The research employed a qualitative thematic analysis method to analyse the data collected through semi-structured interviews with 20 women who were diagnosed with PCOS. The findings reveal that women's satisfaction with the treatment suggestions provided by gynaecologists is affected by several factors such as the effectiveness of the treatment, the extent of the gynaecologist's knowledge about PCOS, communication skills, and the emotional support provided during treatment. Women reported that the gynaecologists who took the time to understand their individual needs and provided emotional support were more successful in treating their PCOS symptoms. The study's implications highlight the need for gynaecologists to offer more personalized and empathetic care to women with PCOS to improve their treatment outcomes and overall satisfaction.*

**Keywords:** PCOS, gynaecologists, satisfaction, PCOS treatment.

### 1. BACKGROUND

Polycystic ovarian syndrome is a condition that affects women in age of reproduction and is related with enlargement of polycystic ovaries. Amenorrhea, hirsutism and obesity are all PCOS symptoms (Stein IF 1935). Excessive facial and chest hair growth are among the indications and symptoms of alopecia areata. " ( Proietti S., Unfer V., Gullo G. Mental illness, like chronic stress, anxiety, depression, sleep apnea and bipolar disorder,, can have a negative impact on the person's total well-being (QoL). Diabetes, infertility, dyslipidemia, glucose intolerance, cardiovascular disease, hypertension and metabolic syndrome are the most common consequences of Polycystic ovarian syndrome. In the year 2010, three researchers from the University of Toronto (Teede, Deeks, and Moran). There are various drugs available for the treatment of PCOS, each with a different amount of efficacy and each with its own set of side effects. Polycystic ovarian syndrome is a disease in females o of reproductive age, and caused through hormonal imbalance induced by bad behaviours, a hectic and stressful lifestyle, and a stressful environment. Women who have PCOS suffer from an abnormally high quantity of the androgen, severe insulin resistance and overweight in their body.

Unfortunately, PCOS being such a common and troublesome disorder has no full proof treatment plan. Women with PCOS have been often found to be dissatisfied with the treatment plan provided by the healthcare providers like the gynecologist. Therefore to understand the gap between the suggestions and treatment plan provided by the healthcare providers and its reception by this sufferers off PCOS, the current study was carried out to assess the level of satisfaction in women with PCOS in terms of the suggestions and treatment plan provided by the gynecologist.

### 2. REVIEW OF LITERATURE

In a study by Gibson-Helm ME (2014) The Australian survey mentioned highlights several issues related to the diagnosis experience and information needs of women with polycystic ovary syndrome (PCOS). The survey

## PCOS and Meditation: A Review Paper

Yashvi Panjrath<sup>1\*</sup>, Dr. Vijendra Nath Pathak<sup>2</sup>

### ABSTRACT

Polycystic ovarian syndrome (PCOS) is becoming more prevalent among women of age of reproduction. Common symptoms of PCOS includes Anovulation, infertility, excessive hair growth on body and face, Ovarian cysts, acne, sleep disturbances and decreased libido. PCOS has not just its biological manifestations but also psychological. These psychological effects have been found to be managed by Meditation which further also improves even the biological manifestations of the same. The aim of the present study is to gather relevant data and review papers highlighting the role of meditation in managing PCOS. For this, peer-reviewed literature that displayed the relationship between PCOS and mental health, PCOS and Meditation were searched on PubMed/Google scholar/PMC/NCBI/NIH/Web of Science and Scopus database from 2003 to 2021. The keywords while searching the database included: "polycystic ovarian syndrome" or "PCOS" and "meditation". The existing literature states that meditation has been found to be effective in managing PCOS. However, a gap in the literature was found as very handful researches exists on psychosocial dimensions of PCOS and intervention to manage the same.

**Keywords:** Polycystic ovarian syndrome, Meditation, Mental Health

**P**COS or Polycystic Ovarian Syndrome is an endocrinal or hormonal disorder found to affect women of reproductive age. In a study by Abbot et. Al. 2005, it was found that PCOS affects 5-10% of the female population. Common symptoms of PCOS includes Anovulation, infertility, excessive hair growth on body and face, Ovarian cysts, acne, sleep disturbances and decreased libido. PCOS has further been linked to heightened risk of type 2 diabetes, infertility anxiety, depression, cardiovascular diseases and reduced quality of life. Hyperandrogenism or elevated testosterone has been found to be the consistent feature of the syndrome occurring in 60-80% of the women suffering from PCOS (Farrell and Antomi, 2010). High levels of male hormones in women with PCOS has masculinism effect like excess hair growth, fertility problems, acne, weight gain and therefore has been termed as "Thief of Womanhood" by Kitzinger and Willmont, 2002. Patients often have been found to complain that there is a lack of professional help in this syndrome leading to excessive worry.

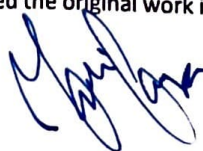
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Received: November 29, 2022; Revision Received: February 27, 2023; Accepted: March 03, 2023

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## CHAPTER 8

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# Managing Polycystic Ovarian Syndrome Through Suryanamaskar

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### ABSTRACT

Polycystic ovarian syndrome (PCOS) is becoming a common issue in women, and yoga has been shown to be successful in reducing and managing its symptoms and complications, which include irregular menses, hormonal imbalances, hirsutism, and mood disturbances. Yoga has been considered successful in complementary medicine systems. The present study aims to identify the impact of yoga, specifically Surya namaskar, in managing the symptoms of PCOS and also to identify its effect on anxiety induced by PCOS. This study explores the relationship between these factors and identifies gaps in the literature. PCOS has been found to cause anxiety and depression. While *Surya namaskar* has been found to be effective in managing the physiological symptoms of PCOS, there is still a lack of studies that solely focus on the impact of Surya namaskar on PCOS-induced anxiety.

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Yoga and Meditation: Past and Present Evidence. Sachi Nandan Mohanty, Rabindra Kumar Pradhan, & Sugyanta Priyadarshini (Eds.)  
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Date of Issue: 03-06-2023

Place: Phagwara (Punjab), India

Prepared by  
(Administrative Officer-Records)

*Yashvi*  
Convener

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REVIEW.....

In the International Conference on Indian Traditional Yoga System-Theory and  
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