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## Impact of yoga Nidra on psychological variables in women with polycystic ovarian syndrome

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### Abstract

The purpose of the study was to investigate the impact of yoga Nidra on psychological variables in women with Polycystic Ovary Syndrome (PCOS). Polycystic Ovary Syndrome is a common endocrine disorder affecting women of reproductive age, characterized by hormonal imbalances leading to various symptoms including irregular menstrual cycles, ovarian cysts, and metabolic disturbances. Psychological factors such as stress, anxiety, and depression often accompany PCOS due to its complex hormonal and metabolic effects.

To conduct this study, thirty middle-aged women employed as private school teachers in Thanjavur were randomly selected as subjects. They were then divided into two equal groups: an experimental group and a control group. The experimental group underwent yoga Nidra practice for a duration of twelve weeks, while the control group did not participate in any specific training or intervention.

Yoga Nidra is a form of guided meditation and relaxation technique that involves systematic relaxation of the body and mind, leading to a state of deep relaxation and heightened awareness. It is known for its therapeutic benefits in reducing stress, promoting relaxation, and improving overall well-being.

**Keywords:** Yoga Nidra, Serum cortisol, PCOS, Psychological variable

### Introduction

Yoga is a living science that aims to fully develop the sixth sense and provide people with the tools they need to maintain peaceful and happy lives. It is essentially an art of understanding everything about the soul, which is only the life force, and realizing its relationship with the body, society, the world, and the universe, maintaining harmony, and eventually merging with the universal soul.

In other words, Yoga is a systematic mental exercise for increasing consciousness, developing willpower, and realizing oneself, metamorphosing the character so that it is in tune with oneself and society, and putting a stop to the birth cycle by uniting with the Almighty. Yoga is a full process of man's perfection that develops his personality for him to accomplish his ultimate objective and so fulfil the purpose of his birth.

In the evolutionary process of nature, man is a unique living being in that he alone is gifted with the sixth sense, a higher level of mind that can understand its existence and functions. It is a divine meter measuring all the actions of the Universe and recognizing oneness within multiplicity and unity in diversity. The five senses work with perceptions. 'Perception' means the three principles of combined action, Cognition, Experience, and Discrimination. The sixth sense is of a higher level for, in addition to the sensual perception, it has the potential to realize the Self, that is, Consciousness itself.

In the course of the development of the sixth sense, man comes to feel the embodiment of the soul, and the eyes and his consumption level rise from one unit to ten units. Molecular structure in the eyes begins to alter accordingly to assist the release of the proper quantity of bio-magnetism. The consciousness, inherent in the life force particles, perceives the degree of light by the raised level of conversion, from one unit to ten. In the process of conservation, the molecular structure of the eyes is affected by the release of bio-magnetism and consequently, the entire metabolic functions of the various cells of the physical body are also proportionately affected. The vibration of the man's bio-magnetic field as a whole is affected by the change.

The consciousness feels these effects by its extension as the mind, as pleasure or pain in varying degrees according to the harmony or disturbance to the whole system.

### **Polycystic Ovarian Syndrome (PCOS)**

Polycystic ovarian syndrome (PCOS), a common endocrine and metabolic condition in women, affects 5% to 15% of the reproductive-age population and is a major cause of an ovulatory infertility. PCOS is distinguished by polycystic ovarian morphology, irregular menstruation caused by oligo-ovulation or anovulation, and Hyperandrogenism (which can present clinically or biochemically). The widely used diagnostic criteria, known as the Rotterdam criteria, involve the presence of two or more of these characteristics, as well as the elimination of other illnesses that may mimic PCOS symptoms, such as prolactin, thyroid, or adrenal hormone problems. PCOS can cause male-pattern hair loss, hirsutism, acne, subfertility, and an increased risk of miscarriage.

### **Cortisol's Impact on PCOS**

Stress is induced by a variety of causes that upset the balance of physiological systems. Stress-induced neuroendocrine alterations can result in psychological disorders. Stress elevates hormone levels, including glucagon, cortisol, growth hormone, catecholamines, corticotrophin-releasing hormone (CRH), prolactin, leptin, and neuropeptide Y, which can lead to hyperglycemia and diabetes. According to Bjorntop, "stress triggers the sympathetic nervous system", which produces hormonal changes that contribute to obesity and diabetes. Psychosocial stress may contribute to visceral obesity and metabolic syndrome.

The cortisol hormone impacts PCOS by improving hypothalamic-pituitary-adrenal axis performance and increasing cortisol production in peripheral fat deposits from corticosteroids, also known as 11 beta-hydroxysteroid aminotransferase type 1.

Women with PCOS may experience a few additional symptoms in addition to polycystic ovaries, elevated release of androgen enzymes, and irregular menstrual cycles. Furthermore, stress, anxiety, sadness, borderline personality disorder, and deficit disorder are more common in women with PCOS. About 60% of women with PCOS also have mental health issues, and the increased cortisol release associated with PCOS is the source of these conditions.

Weight gain, trouble sleeping, and digestive problems are some of the symptoms of PCOS that can result from an imbalance in the hormone cortisol, which is secreted by the adrenal gland.

Yoga Nidra, a powerful practice rooted in tantric tradition, teaches the intentional art of letting go. Contrary to conventional sleep, Yoga Nidra views relaxation as more than simply sinking into an easy chair with distractions. True relaxation demands a heightened state of alertness. In Yoga Nidra, practitioners enter a state of dynamic sleep, where the body, mind, and emotions find total relaxation while maintaining a heightened level of awareness.

The term "Yoga Nidra" originates from Sanskrit, combining "Yoga" (union or one-pointed consciousness) with "Nidra" (sleep). Despite appearing asleep, practitioners operate at a heightened level of consciousness, engaging with subconscious and unconscious realms. This threshold state between wakefulness and sleep, akin to Patanjali's concept of *pratyahara*, fosters deeper levels of concentration and self-awareness. Yoga Nidra addresses three fundamental forms of stress, recognized both in contemporary psychology and yogic

philosophy, collectively termed the "threefold tensions".

**Muscular Tension:** Muscular stress, linked to neurological and hormonal imbalances, is effortlessly released through deep physical relaxation experienced in Yoga Nidra.

**Emotional Tensions:** Rooted in dualities such as love-hatred and success-failure, emotional tensions arise from suppressed feelings and conflicts. Traditional relaxation methods may not adequately address these tensions, but Yoga Nidra can soothe the emotional framework by allowing honest exploration and release of pent-up emotions.

**Mental Tensions:** Mental stress arises from excessive mental activity, leading to a whirlwind of thoughts and emotions. Accumulated mental stress often manifests as negative emotions and behavioural patterns. Yoga Nidra delves into the subconscious mind, providing a pathway to relieve and calm mental tensions, restoring balance to all aspects of being.

By systematically addressing these threefold tensions, Yoga Nidra offers a holistic approach to relaxation, promoting physical, mental, and emotional well-being. Through regular practice, practitioners can cultivate a deeper understanding of themselves and experience profound states of relaxation and inner peace.

## **Materials and Methods**

### **Study Design and Setting**

The present study employed a parallel-arm controlled pilot trial design to evaluate the outcomes of participants randomized to either the experimental group (yoga and conventional care) or the wait-listed control group (conventional care alone). Randomization was conducted with a 1:1 allocation ratio.

### **Study Participants**

Out of 52 volunteers initially assessed for eligibility, a total of 30 participants were deemed suitable for inclusion in the study. Participants were randomly assigned to either the wait-listed control group ( $n = 15$ , mean age  $\pm$  SD,  $59.69 \pm 6.53$  years) or the yoga group ( $n = 15$ , mean age  $\pm$  SD,  $55.82 \pm 5.46$  years). The selection of participants was facilitated through collaboration with instructors from three reputable schools in the Thanjavur area. Eligible individuals were diagnosed within the age range of 25 to 35 years.

### **Data Collection**

Socio-demographic information, personal history, menstrual history (including cycle length, menstrual bleeding volume, dysmenorrhea severity, and last menstrual period), and past therapeutic interventions were recorded through inquiries and review of medical records. Serum cortisol levels were measured at baseline and after two months for both the experimental and control groups, comprising a total of 30 participants.

### **Yoga Nidra Intervention**

The Yoga Nidra intervention utilized in this study was developed by the renowned Indian yoga master, Swami Satyananda Saraswati, of the Munger, Bihar, School. The intervention consisted of a daily routine lasting 45 minutes, administered five days a week over a period of two months. Participants in the experimental group underwent the Yoga Nidra intervention as part of their study participation.

**Statistical Analysis**

To examine the information the collected data was statistically analyzed using Analysis of Covariance (ANCOVA) to look for any noteworthy variations in the designated dependent variables between the groups before and following the training session. A significance level of

3.28 was used for testing in all cases.

**Results**

The results of the analysis of covariance on the pre and post-tests were collated and are shown in tables.

**Table 1:** Analysis of co-variance of the pre-test and test means of the yoga practice and control group in serum cortisol level

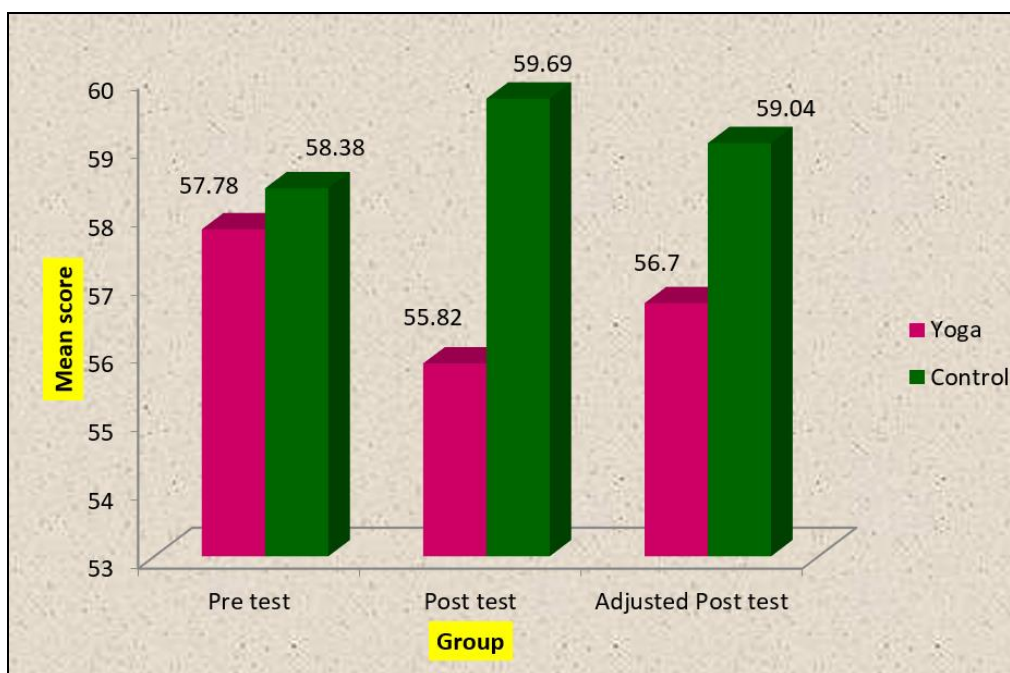
Group	Yoga	Control	Source of variance	Sum of squares	DF	Mean square	'F' Ratio
Pre Test Mean	57.78	58.38	Between	28.812	1	28.812	0.947 NS
SD	5.56	6.53	Within	851.508	28	30.411	
Post-test Mean	55.82	59.69	Between	12.805	1	12.805	5.93 S
SD	5.46	6.69	Within	1225.747	28	43.777	
Adjusted Post-test mean	56.80	59.04	Between	10.693	1	10.693	3.28 S
			Within	1147.36	28	38.561	

S - Significant

NS - Not Significant

From the above table results proved that the pre-test mean score on Yoga practice is 57.78, control group is 58.38. Therefore, it is inferred that the obtained calculated 'F' value is 0.947 for the Pre-Test mean score. Therefore the framed research hypothesis is rejected. It is inferred that there is no significant difference between the pre-test means of the serum Cortisol. However, the Post-test mean score on Yoga practices is 55.82, and the control group is 59.69. Therefore, it is evident that the obtained 'F' value is 5.93 for the Post-Test

mean score. Therefore the framed research hypothesis is accepted. Further, the above table taking into consideration the adjusted post-test mean score on Yoga practice is 56.80, control group is 59.04. Therefore, it is evident that the calculated 'F' value is 3.28. Therefore the framed research hypothesis is accepted. It is inferred that there is a significant difference between the adjusted post-test means of the serum Cortisol level.



**Fig 1:** Show yoga and control

**Discussion**

The findings of this study reveal notable improvements in the assessed well-being traits of the experimental group. Participants who engaged in Yoga Nidra reported enhanced levels of positive well-being, general health, and vitality, along with reduced levels of anxiety and depression compared to those in the control group. Particularly intriguing is the observed reduction in anxiety among individuals practicing Yoga Nidra. Notably, cortisol levels were significantly lower in the experimental group. This reduction in cortisol levels may be attributed to the modulating effects of Yoga Nidra on sympathetic and hypothalamic activity, both of which typically increase during states of anxiety. It appears that the

coordinated response of the hypothalamus contributes to the attenuation of sympathetic (excitatory) nerve activity and the augmentation of parasympathetic (relaxation) nerve activity, ultimately inducing the state of relaxation associated with Yoga Nidra.

Yoga Nidra is believed to harmonize the vital and psychic energies within the nadis, or energy channels, of the body's energy system, thereby supporting physical well-being and mental equilibrium. The unimpeded flow of this energy is thought to underpin excellent physical and mental health. Participants who underwent Yoga Nidra reported acquiring a valuable skill for relaxation and tension control, especially in challenging circumstances. Furthermore, the yoga program

was found to contribute to reductions in physical ailments, sickness, anxiety, stress, depression, and feelings of hopelessness among participants. As a result, individuals reported experiencing a renewed perspective on life, characterized by a sense of rejuvenation and optimism.

### Conclusion

The study focused on examining the effects of modified Yoga Nidra techniques on emotional well-being and serum cortisol levels in women diagnosed with Polycystic Ovary Syndrome (PCOS). Polycystic Ovary Syndrome is known to be associated with various psychological challenges, including heightened stress levels and emotional disturbances, often exacerbated by hormonal imbalances characteristic of the condition.

The findings of the study revealed significant improvements in emotional well-being among participants who underwent the adapted Yoga Nidra practices. These modifications were specifically designed to address the unique needs and challenges faced by individuals with PCOS. Participants who engaged in the adapted Yoga Nidra sessions reported a noticeable reduction in symptoms of anxiety, stress, and depression, indicating an improvement in their emotional state.

Moreover, the study also investigated the impact of these modified Yoga Nidra techniques on serum cortisol levels, a key biomarker of stress. The results demonstrated that participants in the adapted Yoga Nidra group exhibited significantly lower serum cortisol levels compared to those in the control group. This indicates that the tailored Yoga Nidra interventions were effective in modulating the physiological stress response in women with PCOS.

Overall, these findings suggest that the modified Yoga Nidra techniques, specifically designed for individuals with PCOS, were successful in improving emotional well-being and reducing stress levels. By addressing both the psychological and physiological aspects of the condition, these interventions hold promise as complementary approaches to managing PCOS and promoting overall well-being in affected individuals. Further research and clinical trials may be warranted to validate these findings and explore the long-term effects of Yoga Nidra interventions in this population.

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