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Exploring on the Comparative Merit of Allopathy Medicine and Yoga Therapy for PCOD Condition

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Abstract---Polycystic Ovary Disorder (PCOD) is a disorder in women characterized by elevated levels of male hormones and infrequent or absence of ovulation. It is the leading cause of infertility in females. However, several treatments are available for treating PCOD, with varying success levels, and are associated with drug-related side effects, repetition of the problem, and is expensive. Alternative therapies attract scientists and health care promoters because of their compatibility and enhancing the yoga therapy programs, which are cost-effective and viable in primarily populated countries like India. The present study attempts to investigate the comparative merit of yoga therapy intervention with allopathy treatment in reducing hormonal imbalance and anxiety levels experienced in women with PCOD. This study was conducted on 50 women participants with PCOD who have undergone treatment at a gynecological clinic, Visakhapatnam. All the fifty women participants have satisfied the Rotterdam criteria for PCOD condition. Based on their choice, the 50 participants (of age 20-35 years) have divided into two groups: the Yoga Intervention group Allopathy intervention group. The dependent variables studied in this research are serum testosterone, serum Prolactin, serum LH, serum FSH, and anxiety scores. Baseline data of hormonal levels and anxiety levels were compared with post-data collected after 12 weeks of yoga therapy intervention and 12 weeks of allopathy treatment intervention. To analyze the data paired t-test was used. Statistical analysis suggests that the mean differences were significant at the 0.05 level. The research findings found that the yoga Intervention Group and allopathy treatment group showed

significant $P = < 0.001$ in psychological and hormonal factors such as state and trait anxiety levels and serum testosterone, serum prolactin, serum LH, and serum FSH. After three months of yoga therapy, they have resulted in a significant decrease in serum testosterone from 97.53 ± 9.49 to 51.57 ± 12.92 , serum prolactin from 31.38 ± 3.20 to 14.40 ± 1.39 . Serum LH from 16.81 ± 1.13 to 8.59 ± 1.05 , and serum FSH 10.52 ± 1.62 to 5.16 ± 0.72 without medication. Whereas in the allopathy treatment group, after three months of treatment resulted in a significant decrease in serum testosterone from 82.36 ± 8.25 to 65.98 ± 6.58 , serum prolactin from 28.23 ± 4.03 to 18.55 ± 3.59 , serum LH 16.05 ± 1.87 to 9.42 ± 2.42 , and serum FSH 8.99 ± 0.96 to 5.46 ± 1.63 . The anxiety scores in the yoga intervention group after three months of yoga therapy resulted in a significant decrease in state anxiety score from 48.08 ± 9.26 to 31.08 ± 6.64 , a significant decrease in Trait anxiety score from 57.92 ± 10.84 to 32.64 ± 7.52 without medication. In the allopathy treatment group after three months of treatment for anxiety resulted in a significant decrease in state anxiety score from 51.64 ± 10.71 to 42.40 ± 8.74 , a significant decrease in Trait anxiety score from 54.28 ± 8.80 to 45.16 ± 7.6 . The improvements observed suggest that regular yoga practice can be a useful alternative therapeutic option for women with PCOD, particularly for improving serum hormonal levels and anxiety levels, a hallmark feature of PCOD.

Keywords---anxiety, polycystic ovarian disorder, yoga therapy.

Introduction

Clinicians and scientists have been challenged by polycystic ovary disorder (PCOD) for several decades. It is probably the endocrine disorder in women, accounting for most cases of hirsutism, menstrual disturbance, and anovulatory infertility (Goodarzi et al., 2011). Polycystic ovary disorder is a multifaceted disease with a spectrum of manifestations affecting women of all age groups. Disorders of ovarian dysfunction cause different clinical presentations depending on the phase of the reproductive life during which they first manifest (Otto B et al., 2018; Patel, 2018). Disorders during the reproductive years affect most women, and the menstrual cycle is the most common presentation of a woman with infertility. Women typically present with erratic menstruation, hirsutism, and obesity; although not all these features may be present, fertility is also often impaired (Ajmal et al., 2019).

Women with PCOD face challenges to their feminine identity, including irregular menstrual cycles, hirsutism, acne, acanthosis nigricans, obesity, and infertility. All likely to impact the quality of life and mood and potentially precipitate depression and anxiety. Indeed, it significantly affects adult women, resulting in diminished quality of life, altered feminine identity, and dysfunction in the family and work environment. (Nidhi R et al., 2011). Further, the risk of adolescents with PCOD, who are at the height of identity development and awareness of body

image, having a more significant disturbance in quality of life, cannot be overlooked.

Clinical features like include reproductive manifestations such as reduced fertility, reduced frequency of ovulation, irregular menstrual cycles, cysts, and high concentrations of male hormones such as testosterone which can lead to excess facial or body hair growth and acne. PCOD affects the quality of life and can worsen existing anxiety and depression either due to the features of PCOD or due to the diagnosis of chronic disease (Teede H et al., 2010). A woman's body does not make enough of the hormones needed to ovulate. When ovulation does not happen, the ovaries can develop many small cysts. These cysts make hormones called androgens (Licy et al., 2019). Women with PCOD often have high levels of androgens. Elevated circulating androgen levels such as testosterone, LH, and prolactin were observed in approximately 60-80% of PCOD patients (Hechtman, 2020).

The group of Maryam et al. has conducted a thorough research regarding psychological experience among women with PCOD. This study can be a great help or assistance in the treatment of PCOD. It includes a wide range of research data on psychological manifestations. According to this study, psychological experiences related to the disease symptoms like hirsutism, alopecia, and acne are the leading causes of losing physical attractiveness, reduced self-confidence. Due to obese feelings, there is dullness in performing daily activities, inability to participate in sports, to look older than actual age, and lack feminine delicacy. Most women said that prolonged menstrual irregularities are a stressful factor that makes them anxious and angry (Maryam et al., 2009).

Most participating women were concerned about the adverse complications of hormonal drugs (such as oral contraceptive pills) on their fertility. They assumed that they would be prone to infertility in the future. Nasiri Amiri et al. believed that this disease had raised various challenges for women with PCOD. In this regard, it is essential to give alternative therapy support to women with PCOD. Also, healthcare providers should pay much attention to this disease's psychological and biochemical aspects, irrespective of the severity of its symptoms or response to the treatment, to provide the patients with more comprehensive care (Nasiri Amiri F et al., 2014). Medication culture in India has evolved over the years. Yoga has lost its position and preference in India, although its origin is here. Owing to allopathic treatment's quick results majority of the population prefer healthcare needs in India. According to the NSSO survey, 90% population in urban and rural areas in India are inclined towards allopathic treatments. Only 5 to 7% usage of alternative treatments has been reported in rural and urban areas. The Indian Pharmaceutical Industry is ranked third most significant in volume (Tripathy J et al., 2017).

Allopathy mainly focuses on symptoms. It is a chemical ingested inside a human to kill the symptoms and relieve the patients. It does not mean that the ailment is uprooted from the body. Also, these allopathic medicines come with side effects (Goodman N et al., 2015). The most remarkable thing about the human body is its power to self-heal. While using these allopathic drugs, we are numbing the activity to remove the instant pain, which slows the recovery process. The body

often needs to fight on its own against pathogens, this might result in sickness at first, but that makes its fighting spirit stronger for another attack by a similar pathogen in the future (Stephens I et al., 2017). The cited reasons include strong dissatisfaction due to pharmaceutical therapies, desire for an effective and safe alternative for hormonal contraception and fertility drugs, and desire for more than single symptom management. Existing non-pharmacological options for women with PCOD are dietary modification (including reduced carbohydrate intake) to promote a reduction in serum insulin levels (Domecq JP et al., 2013) nutritional and herbal supplements (Arentz S et al., 2014). Acupuncture (Manneras L et al., 2009) and aerobic exercise to promote weight loss (Moran LJ et al., 2009) (Hoeger KM et al., 2008) (Saje et al., 2016).

Yogic lifestyle, a form of holistic mind-body medicine developed thousands of years ago, is simple and can be practiced with simple training. There is mounting evidence that Yoga reduces PCOD related hormonal and anxiety symptoms. A study on cyclic meditation on PCOD disordered women volunteers shows a reduction in state anxiety as assessed by Spielberger's inventory. Also, a two-month (90 min twice a week) yoga intervention showed a significant decrease in serum testosterone, serum prolactin, and state and trait anxiety in women suffering from PCOD disorders (Subramanya P et al., 2009). Yoga is a holistic mind-body medicine that effectively reduces anxiety symptoms in PCOD patients. Previous studies have shown that asana practice releases mental and emotional tensions by "acting somatic-physically through the body to the mind." Yoga improves autonomic functions by triggering neurohormonal mechanisms and suppressing sympathetic activity (Chetry et al., 2021; Varambally & Gangadhar, 2012, 2016).

A recent review states that Positive physiological and psychological outcomes were identified in Hatha Yoga, Iyengar yoga, integrated yoga therapy, and pranayama in healthy populations and various diagnostic groups (Ansari, 2021; Ravi Shankar et al., 2014; Taylor et al., 2013). According to a recent study, yoga therapy helps decrease testosterone levels and alleviate symptoms of anxiety and depression in women with PCOD by 29%, along with a decrease in anxiety and depression levels (Tripathi & Bharadwaj, 2021). The assessment of psychological symptoms can be performed with different validated disease-specific questionnaires such as STAI Scale (state-trait anxiety inventory), the Beck Anxiety Inventory, and the Beck Depression Inventory, which evaluate the mental symptoms (Azziz R et al. 2004).

Aim of the study

From the brief review of scientific literature on PCOD conditions, it may be said that several studies have examined the therapeutic benefits of Yoga for treating women with PCOD conditions. A close examination of the methodology followed in these studies suggests that most studies were done on short-duration yoga programs. Further, the examination of the research studies also reveals that yoga therapy is the better alternative therapy, but in which way they did not focus. However, this study focuses on how yoga therapy effectively reduces the hormonal imbalance and anxiety conditions of the subjects with PCOD, incorporates the

awareness of self-healing power, and brings awareness about alternative therapies like Yoga.

Intending to cover these gaps in the research on PCOD and enhance our understanding of PCOD problems and yoga therapy programs, it appears to be necessary to investigate hormonal and anxiety level changes that yoga therapy can bring about in women with PCOD conditions. It is also important to conduct long-term studies on the benefits of yoga therapy on PCOD. The present study is an attempt to answer the above questions.

Methodology

Objectives

The present study attempts to investigate the following objectives related to the effectiveness of Yoga therapy on hormonal and anxiety variables among women with the polycystic ovarian disorder.

- Objective -1 To study the improvement in PCOD condition as measured by Testosterone levels after three months of yoga therapy and three months of allopathy treatment.
- Objective - 2 To study the improvement in PCOD condition as measured by serum prolactin levels after three months of yoga therapy and three months of allopathy treatment.
- Objective - 3 To study the improvement in PCOD condition as measured by LH levels after three months of yoga therapy and three months of allopathy treatment.
- Objective - 4 To study the improvement in PCOD condition as measured by FSH levels after three months of yoga therapy and three months of allopathy treatment.
- Objective -5 To study the improvement in PCOD condition as measured by anxiety levels after three months of yoga therapy and three months of allopathy treatment.

Research hypotheses

The following Hypothesis was followed.

- H1 It is hypothesized to be a significant improvement in the PCOD condition of women suffering from PCOD disorder as measured by Testosterone levels after three months of yoga practice and three months of allopathy treatment.
- H2 It is hypothesized to be a significant improvement in the PCOD condition of women suffering from PCOD disorder as measured by serum prolactin levels after three months of yoga practice and three months of allopathy treatment.
- H3 It is hypothesized to be a significant improvement in the PCOD condition of women suffering from PCOD disorder as measured by LH levels after three months of yoga practice and three months of allopathy treatment.

- H4 It is hypothesized to be a significant improvement in the PCOD condition of women suffering from PCOD disorder as measured by FSH levels after three months of yoga practice and three months of allopathy treatment.

Sample

The sample in this study was conducted on women aged 20 to 35 years. Comprises 50 women aged 20-35 having PCOD problems divided into the allopathy treatment group and the yoga intervention group. The sample was selected using a convenient sampling technique. Women who come to the yoga therapy program of the researcher will be included in the yoga intervention group after taking the consent of the subjects. Subjects in the allopathy treatment group were selected from a gynecological clinic in Visakhapatnam.

Yoga intervention group

Inclusion Criteria

Women in the age range of 20-35 years were selected for this yoga intervention group. Women who are diagnosed as having PCOD and anxiety conditions only were selected. Women willing to participate in a yoga therapy program for PCOD and have anxiety symptoms will be included.

Exclusion Criteria

Women who do not have PCOD will be excluded from this yoga intervention group. Women with other health problems not associated with PCOD will not be included in the yoga intervention group. Women above or below the age range of 20-35 years will not be included in this study.

Allopathy treatment group

Inclusion Criteria

Women in the age range of 20-35 years will be selected for this Allopathy treatment group. Women who are diagnosed as having PCOD and anxiety symptoms only will be selected. Women who are willing to take Allopathic treatment for PCOD and anxiety symptoms will be included.

Exclusion Criteria

Women who do not have PCOD will be excluded from this Allopathy treatment group. Women with other health problems not associated with PCOD will not be included in the Allopathy treatment group. Women above or below the age range of 20-35 years will not be included in this study.

- After the research study is completed, all the allopathy treatment group participants will also be offered yoga therapy classes.

The Institutional Ethical Committee approved the study of GITAM (Deemed to be University). Signed informed consent was obtained from the college authorities and the participants.

Tools used for the study

- Fertility Hormone Blood Test: This test will be done in a diagnostic laboratory. The test measures the levels of Hormone that are considered as related to PCOD disorder, namely: LH, FSH, testosterone, and prolactin.

State-Trait anxiety inventory (STAI)The test measures anxiety levels; the STAI consists of separate self-report scales for measuring two distinct anxiety concepts: It consists of 2 forms (Y1 and Y2), each of 20 items rated on a 4 point scale. (Spielberger, 1983)

Dependent variables

In this research, the dependent variables are investigated and categorized as physiology and psychology-related variables. The two categories are presented below:

Physiological variables

- LH levels
- FSH levels
- Testosterone Levels
- Prolactin Levels

Psychology-related Variables

- State-Trait anxiety inventory (STAI)

Independent Variable

Hatha Yoga Intervention

- Hatha yoga intervention is designed, taking the guidance of classical text on Yoga, yoga experts, and allopathy doctors. The therapy program is designed following the researcher's previous experience in yoga therapy.
- A special package of Hatha Yoga practices designed for the PCOD therapy program will be taught for three months, one hour weekly five days, to the subjects who join the therapy program. The special package of Hatha Yoga practices comprises Yogic kriyas (cleansing techniques), asanas (body postures), pranayama (breathing practices), bandhas (energy locks), meditation, and yoga Nidra (relaxation procedure). These yogic practices were done regularly for three months by all the subjects included in the yoga intervention group.

Allopathy treatment

The allopathy treatment group, comprising 25 women having PCOD conditions, has approached the gynecological clinic to get treat PCOD and related anxiety symptoms. They are using allopathy medicine as prescribed by the gynecologist.

Procedure

All women participants of age group 20 to 35 attended an interactive introductory lecture where the purpose and design of the study were elucidated. They were asked to report after obtaining the signed consent.

Clinical Assessment

Venous blood collection did from participants to measure serum testosterone, serum prolactin, Follicle-Stimulating Hormone (FSH), Luteinizing Hormone (LH) at the base level. Post-intervention measurements were retaken for participants in both the allopathy treatment group and the yoga intervention group within one week after the conclusion of the 3-month intervention. Both intervention group participants also had their free testosterone, serum prolactin. Serum FSH and serum LH were measured to determine whether significant post-intervention changes.

Assessment of Anxiety

The state-trait anxiety inventory (STAI) is the most widely used cross-cultural anxiety measure. The STAI is comprised of separate self-report scales for measuring two distinct anxiety concepts: It consists of 2 forms (Y1 and Y2), each comprising of 20 items rated on a 4 point scale. (Spielberger, 1983). Form Y1 assesses state anxiety, defined as a transitory emotional state that varies in intensity and fluctuates over time; it evaluates how the respondents feel right now. Form Y2 evaluates trait anxiety, a relatively stable individual predisposition to respond to situations in general. Total scores interpreted as follows: 20 to 37 no or minimal anxiety; 38 to 44, moderate anxiety; and 45 to 63, severe anxiety. Before the intervention, questionnaires were completed by both groups of women (Allopathy treatment group, Yoga intervention group). The intervention lasted for 12 weeks. At the end of the 12th week, the questionnaire of STAI was again completed by both groups of women.

Intervention

Allopathy Treatment Intervention.

With the consent of the allopathy treatment group, baseline data on hormonal levels and anxiety levels were measured and tabulated before starting the treatment. After using medication for anxiety symptoms for 12 weeks, post data of anxiety score was measured and tabulated.

Hatha Yoga Intervention

A special package of Hatha Yoga practices designed for the PCOD therapy program will be taught for three months, one hour weekly five days, to the subjects who join the therapy program. The special package of Hatha Yoga practices comprises Yogic kriyas (cleansing techniques), asanas (body postures), pranayama (breathing practices), bandhas (energy locks), meditation, and yoga Nidra (relaxation procedure). These yogic practices were done regularly for three months by all the subjects included in the yoga intervention group.

Yoga Intervention Protocol

Yoga intervention consists of 60 minutes daily, which will be practiced for 5 days per week.

Sr. No.	Yogic Practice	Technique	Duration in Minutes
1	Lecture	Lecture in the form of cognitive restructuring based on the spiritual philosophy underlying yogic concepts	5
2	Kriya	Agni Sara (Daily)	1
		1. Jala Neti (weekly once) 2. Sutra Neti (weekly once)	5
		Trataka (weekly twice)	3
3	Loosening Exercises	Chakki chalana, neck and shoulder rotation.	1
4	Surya-Namskara (Sun Salutations)	Containing 12 postures with breath awareness	2
5	Yoga Asana	Standing Posture 1. Parivritta Trikonasana 2. Prasarita Pada Uttanasana	1
		Sitting Posture 1. Badda Konasana & Supta Badda Koanasana 2. Janusirasana 3. Paschimottanasana 4. Supta Kurmasana	2
		Prone Posture 1. Bhujagasana 2. Sarpasana 3. Dhanurasana	2
		Supine Posture 1. Dwipada Vistruta Uttana Padasana 2. Anantasana 3. Salmba Sarvangasana 4. Halasana 5. Viparita Karani	3
6	Pranayama	Kapalabhati Jalandhar Bandha	3
		Brahmari Maha Bandha (Jalandhara, Udyana & Moola Bandha)	3
		Seethali Jalandhara & Udyana Bandha	3
		Nadi Suddhi Maha Bandha (Jalandhara, Udyana	3

		& Moola Bandha)	
7	Meditation	Meditation with Shambhavi Mudra and Samana Mudra	15
8	Relaxation	Yoga Nidra (weekly twice)	10
		Savasana (Daily)	5

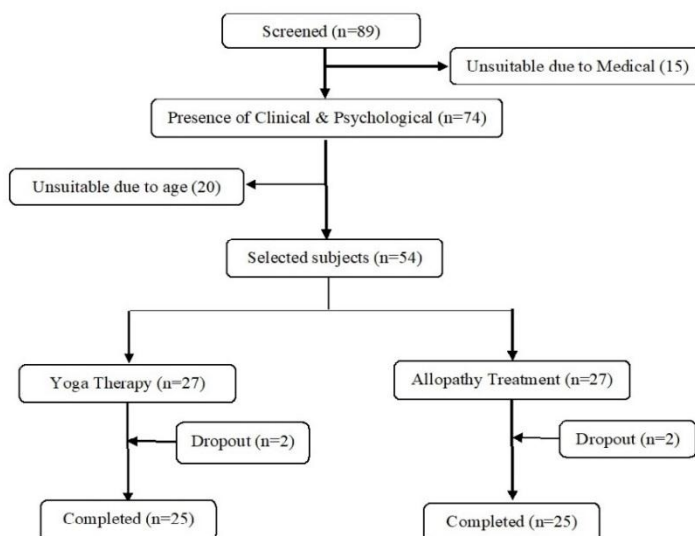
Data analysis

Statistical Package for Social Sciences (SPSS) for Windows version 28.0 (SPSS Inc., Chicago) was used for the analysis and a two-sided p-value of < 0.001 was considered as significant. Our objective was to compare the changes after yoga therapy with allopathy treatment, and the data was normally distributed. An inferential statistic t-test was used to compare difference scores (delta change) between pre-and post-data of the two groups.

Results

Figure 1 describes the trial profile. The recruitment was carried out between October 2021 and December 2021. Subjects were taken from the gynecological clinic. After the laboratory evaluations, 54 women participants who satisfied the Rotterdam criteria of PCOD were randomized into two groups. There were four dropouts, 2 in the yoga therapy group and 2 in the allopathy treatment group. The reasons (not confirmed) given for withdrawal were (a) Two were confirmation of pregnancy and (b) Two were unexpected reasons. The final analysis was done on 50 women participants, 25 in the yoga therapy group and 25 in the allopathy treatment group. For yoga therapy, session participants attended with 73.33 % attendance.

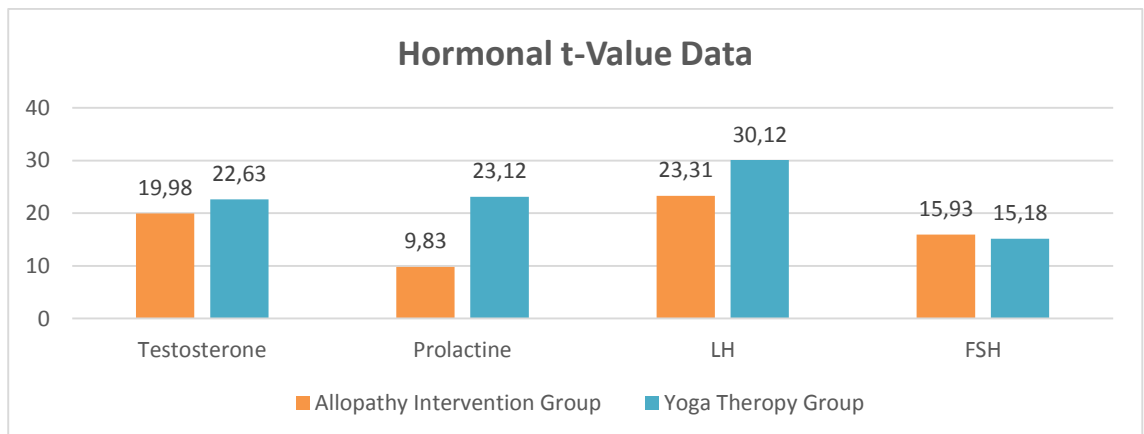
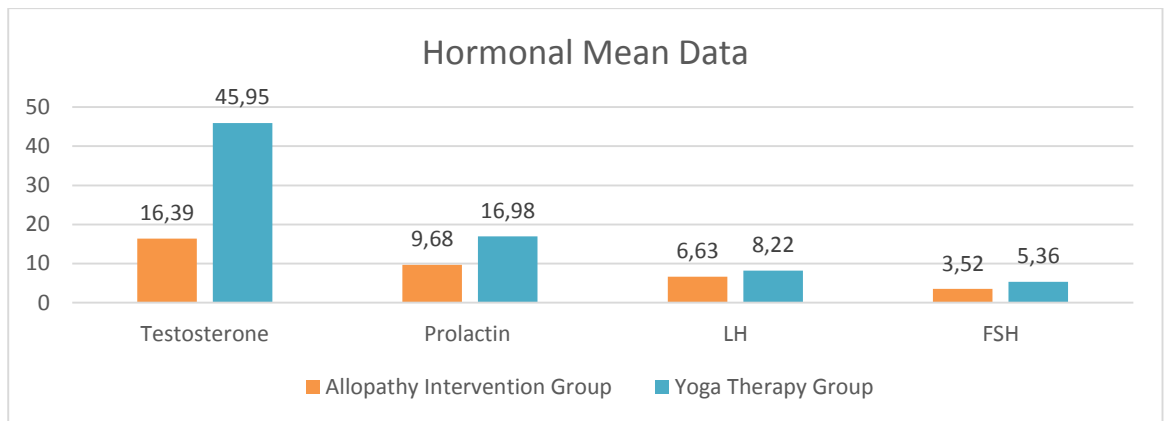
Fig 1



A total of 50 women participants suffering from PCOD participated in the study. The participants were suffering from PCOD, the duration varying from 6 months to one year. The Participants were divided into two groups of 25 each, one group took medication, and another group went through yoga intervention. However, the total testosterone, prolactin, LH, were significantly reduced in the yoga intervention group compared to the medication group (Table 2).

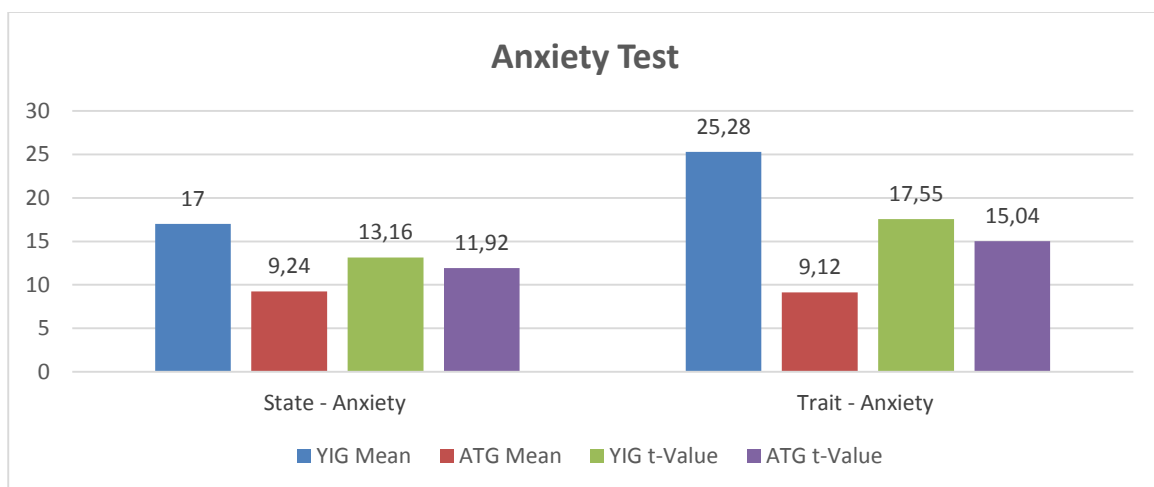
Table 2
Participant Parameters Pre the 3-Month Intervention (N=25)

Sr. No.	Test	Allopathy Treatment Group Pre-Post Test				Yoga Intervention Group Pre-Post Test			
		Mean	SD	t-Value	P-Value	Mean	SD	t-Value	P-Value
1	Testosterone ng/dL	16.39	4.10	19.98	<.001	45.95	10.15	22.63	<.001
2	Prolactin ng/dL	9.68	4.92	9.83	<.001	16.98	3.67	23.12	<.001
3	LH ng/dL	6.63	1.42	23.31	<.001	8.22	1.37	30.12	<.001
4	FSH ng/dL	3.52	1.11	15.93	<.001	5.36	1.77	15.18	<.001



The study showed that three months of yoga therapy resulted in a significant decrease in serum testosterone from 97.53 ± 9.49 to 51.57 ± 12.92 . Significant decrease in the serum prolactin from 31.38 ± 3.20 to 14.40 ± 1.39 . Serum LH from 16.81 ± 1.13 to 8.59 ± 1.05 , serum FSH significantly decreased from 10.52 ± 1.62 to 5.16 ± 0.72 , without medication. After a period of 3 months, the medication group also showed a significant decrease in serum testosterone, serum prolactin, serum LH, serum FSH (Table 3). At the same time, the allopathic treatment also showed a significant decrease in serum testosterone (from 82.36 ± 8.25 to 65.98 ± 6.58), Serum Prolactin (from 28.23 ± 4.03 to 18.55 ± 3.59), Serum LH (from 16.05 ± 1.87 to 9.42 ± 2.42), and Serum FSH (from 8.99 ± 0.96 to 5.46 ± 1.63) with medicine.

Sr. No	Test	Yoga Intervention Group Pre-Post Test					Allopathy Treatment Group Pre-Post Test				
		Paired Differences		t	Significance		Paired Differences		T	Significance	
		Mean	SD		One-Sided p	Two-Sided p	Mean	SD		One-Sided p	Two-Sided p
1	Anxiety_Pre_Test_X1 Anxiety_Post_Test_X1 State	17.00	6.46	13.16	<.001	<.001	9.24	3.88	11.92	<.001	<.001
2	Anxiety_Pre_Test_X2 Anxiety_Post_Test_X2 Trait	25.28	7.20	17.55	<.001	<.001	9.12	3.03	15.04	<.001	<.001



The present study observed a higher t value for state and trait anxiety in the yoga therapy intervention group than the allopathy treatment group. Although both groups significantly improved state and trait anxiety levels, the yoga therapy group had a better t-value of 13.15 in state anxiety and 17.55 in trait anxiety, and at a degree of < 0.001 significance with a two-sided p-value. Whereas the allopathy treatment group had t-value of 11.92 in state anxiety and 15.04 In trait anxiety with a level of significance < 0.001 . yoga therapy group achieving significant results without medication.

The paired difference scores at 95% confidence levels in the Yoga intervention group had an A-state score of 17.00 ± 6.46 and an A-trait score of 25.28 ± 7.20 . In the allopathy intervention group, the -state score of 9.24 ± 3.88 and the A-trait score of 9.12 ± 3.03 . The values representing the yoga intervention group had a high standard deviation which indicates the values are spread out over a wide range. Whereas the allopathy intervention group had a low standard deviation level, indicating data clustered around the mean. Hence allopathy group still has anxiety levels even after treatment. The changes in state and trait anxiety were significant between the two groups after 12 weeks of interventions.

Discussion

This study is the non-randomized controlled trial comparing the effect of yoga therapy with allopathy treatment on hormonal imbalance and state and trait anxiety in women with PCOD. The present study was conducted to evaluate the effectiveness of 12 weeks of yoga therapy on hormonal parameters like serum total testosterone, serum prolactin, serum LH, serum FSH, psychological parameters state, and trait anxiety levels with the allopathy treatment group. Getting Yoga therapy for 12 weeks helped the yoga intervention group participants balance the hormonal levels significantly, i.e. serum testosterone, prolactin, LH, FSH, and STAI anxiety score, in comparison to the allopathy treatment group that had only medication. Previous studies have examined yoga therapy in subjects with polycystic ovary disorder. However, limited publications are available based on the comparative merits of yoga therapy and allopathy treatment on hormonal imbalance and anxiety parameters. The present study results showed that yoga therapy has significant results in balancing hormonal levels and anxiety levels among the participants without medication. However, there is a good result in the allopathy treatment group, in balancing the hormonal levels, but the low impact in prolactin and LH hormones. Anxiety levels, state, and traits also get low impact compared to the yoga therapy intervention group. The results of another study which was conducted by Nidhi et al. to evaluate the effect of comprehensive yoga therapy on endocrine parameters among adolescents, showed that 12 weeks of yoga therapy have reduced significantly the rate of hirsutism in these patients (Nidhi R et al.,2012). tel et al. also examined the effectiveness of Yoga mindfull exercises for three months; and found that the therapy had no effects on hirsutism. Yoga therapy offers an effective method of reducing and managing stress, depression and anxiety , a numerous studies revealed the efficacy of Yoga on mood-related disorders (Ramnidhi et al.,2012).

Currently, treatment for anxiety and depression involves primarily psychological and pharmacological interventions; however, mind-body interventions are becoming increasingly popular to reduce stress in individuals (Farideh Z et al., 2012). Yoga, f mind-body exercise, has become an increasingly widespread therapy used to maintain wellness and alleviate many health problems and ailments. Yoga therapy should be considered an alternative therapy to treat stress, anxiety, depression, and other mood disorders (Marcy C et al.,2013). The results observed in this study may have occurred because of the tranquility of the mind, and forward and backward bendings helped fine-tune glands and make hormonal secretions properly, achieved after the yoga practice. Subjects observed the self-healing symptoms in physiological and psychological conditions. There is

evidence proving the efficacy of Yoga in reducing stress arousal by modulating sympathetic nerve activity (Gatantino M et al., 2004) and reducing anxiety levels (Williams KA et al. 2005). Also, the mental silence facilitates greater awareness by altering the individual's cognitive appraisal and perceived self-efficacy concerning stressors and thus reduces anxiety symptoms (Harinath K, et al., 2004).

While modern medicine can heal physical diseases and alleviate psychological disorders in many cases, it is known that a purely medical approach is less effective in healing the emotional, personality and intellectual layers of the human entity. The discipline of Yoga therapy offers individuals a timeless and holistic model of health and healing. Even though it may not result in the complete elimination of physical diseases and adverse conditions from the body, it offers a path of holistic healing (Ravindran A et al., 2013). An undeniable connection exists between a person's overall physical and mental health and the inner peace, and well-being yoga is designed to achieve. Yoga therapy suspends the fluctuations of the mind, and by acting consciously, we live better and suffer less.

Conclusion

This research concluded that yoga therapy and allopathy medication therapy both show significant results for the treatment of PCOD condition. In allopathic treatment, there is always the risk of side effects and repetition of PCOD when we stop using the medication. Yoga therapy significantly reduces hormonal imbalance, and anxiety levels have no side effects and is cost-effective. Participants can continue their life long. Yoga therapy works at much more subtle and more profound levels than just the physical body, ensuring a holistic Poly Cystic Ovarian Disorder treatment. Hence yoga therapy has a positive impact on PCOD condition.

It indicates the usefulness of alternative therapies (interventions). This study thus incorporates lifestyle interventions among PCOD affected women. Lifestyle modifications among PCOD affected women may be a successful strategy in PCOD risk minimization on physiological and psychological conditions. Comprehensive systematic reviews have identified emerging evidence of the cost-effectiveness of various alternative therapies compared to the usual care. Thus, Yoga therapy interventions could play a significant role as an economical primary intervention in women's reproductive health.

Advantages

This study is having following advantages.

- Yoga techniques will have no side effects.
- Yoga therapy is individualized focused on metabolic consequences and decreasing further complications.
- After learning these yoga techniques, they can be practiced life long, without further cost implication.
- Being largely populated country, these yoga techniques may become affordable.

Limitations

Small sample size.

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