

## Effect of fertility massage versus yoga in polycystic ovarian syndrome

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### ABSTRACT

**Background:** Polycystic Ovarian Syndrome has been commonly seen in women, with a prevalence of 4-7% it consists of symptoms such as hirsutism, obesity, acne, alopecia, infertility, acanthosis nigricans, fertility massage is treatment in which massage is given with fingertip in between ASIS and pubic symphysis on the ovarian region on both sides in females, yoga therapy consists of a variety of asanas carried out for reducing anxiety and depression in PCOS subjects.

**Methodology:** 40 subjects were randomly divided into massage and yoga groups, with 6 weeks for 5 days week for 30 mins massage and yoga for 20 mins with outcomes such as hospital anxiety and depression scale and polycystic ovarian syndrome questionnaire.

**Result:** Calculated using SPSS version 26 were paired t-test was done for within-group and unpaired t-test for between-group comparison  $p < 0.001$

**Conclusion:** Calculated using SPSS version 26 were paired t-test was done for within-group and unpaired t-test for between-group comparison  $p < 0.001$

**KEY WORDS:** polycystic ovarian syndrome, Fertility massage, YOGA, Hospital anxiety, and depression scale, polycystic ovarian syndrome questionnaire.

### Background

Polycystic ovary syndrome (PCOS) is a common endocrine & emerging quality of life disease among growing age group females [1]. The prevalence of PCOS is 2.2% to 26% [2]. (PCOS) is a gynecological condition occurring due to hormonal imbalance in which there will be an increase in the ovary size as well as consist of cyst formations at edges of the ovaries, moreover, there is a cluster of signs and symptoms in PCOS. Stein and Leventhal in the year 1935 described this as a syndrome. This heterogeneous disorder is characterized by excessive androgen production mainly in ovaries [3].

Pathophysiology of PCOS states that there is ovarian enlargement and Ovarian volume is

increased  $> 10 \text{ cm}^3$ . The stroma is increased which leads to capsular thickening which is pearly white in color. The presence of multiple ( $> 12$ ) follicular cysts evaluated about 2–9 mm in diameter is crowded around the cortex [3].

Signs and symptoms of the polycystic ovarian syndrome include irregular menstrual cycles, hirsutism, acne, obesity, and infertility. This results in an effect on the quality of life and mood that causes depression and anxiety [1].

Typical features describing PCOS are: Acanthosis nigricans, Hyperandrogenism, Excessive hair growth which is termed hirsutism, Acne, Acanthosis nigricans, Irregular menstrual cycle, Obesity

The exact pathophysiology of polycystic ovarian syndrome is still not understood. It may be considered under the following heads: Hypothalamic-pituitary compartment abnormality, Long-term consequences, Anovulation, Obesity and insulin resistance, Androgen excess [3]. Ovaries are part of the female reproductive system they are gonads and are two in number they are 3cm length, 2cm breadth, and 1 cm thick, from puberty to menopause that is during the reproductive phase, it has blood supply by ovarian artery from the abdominal aorta and a nerve supply from sympathetic T10 segment [5]. Diagnostic criteria Rotterdam criteria include: - Oligo/amenorrhea: delayed menstrual cycle for nearly forty-five days or more or less than eight periods per year [3].

Clinical hyperandrogenism: Changed Ferriman and Gallwey score of 6 or higher [6]. In the absence of other causes of hyperandrogenism, biochemical hyperandrogenism is defined as a serum testosterone level of >82ng/dl [7].

The management of the PCOS is to reduce the cardiovascular risk factor and by reduction of weight improving reproductive dysfunction. Weight loss is a major point to be taken care of to improve fertility in women with PCOS. No typical pharmacological intervention for polycystic ovary syndrome among treatment strategies. PCOS can be treated with medical management [8,9], surgical approach[10], and lifestyle modification in the form of regular exercise, YOGA, diet modification.

**Yoga:** It is a type of workout that all people can exercise for youth to geriatric. YOGA in women with polycystic ovary syndrome, there is no weight-loss with improved insulin sensitivity and ovarian morphology.

Anjali Verma et. al (2015) suggest that PCOS results in multi-system involvement, yoga to be considered as a stress reliever and also works on adiposity component which is considered as a consequence to stress so yoga

results in increased heart rate that eventually works on endurance and results decrease in weight. Emphasis on weight-bearing positions results in muscular built-up that helps to fight opposite to insulin resistance for prevention of symptoms. Maintaining difficult positions can build muscles. The growth of muscle mass, in turn, helps in the fight against insulin resistance - one of the keys to managing polycystic ovarian syndrome. Heart rate increases after active yoga, which provides cardiovascular exercise and contributes to good weight loss, and reduces anxiety and depression. Asanas and Pranayama promote hormonal balance and relieve stress. The yoga and Ayurveda beliefs define specific positions that affect the energy systems in the body that women with polycystic ovary syndrome can still exercise as a way to balance the body[11].

**Fertility Massage** is a strong and non-being type of fertility treatment and it is a complex and advanced form of massage approach. Blood flow is been increased by applying massage on the abdomen and reducing stagnation and stiffness, which makes periods less painful.

K Rekha et. al (2019) affirmed that this technique showed reduction stress, waist to hip ratio, and moreover size of the cyst[12]. Ahmed et.al (2011) said that massage therapy to consider replacement to the pharmacological or invasive technique for PCOS. This technique is considered to be revolutionary for females suffering from this sort of syndrome as this therapy results to enhance bloodstream levels that cause oxygen supplementation to egg and moreover destroy cysts, also reducing the level of depression and anxiety[13,14]. So for evaluating anxiety and depression in this population PCOSQ with a reliability of 0.70-0.97 was taken having five components, depicting health and related issues with seven rating scores 1 demonstrate highest impaired to 7 the least[15].

So, the Hospital Anxiety and Depression scale and polycystic ovarian syndrome questionnaire are used to evaluate anxiety and depression in patients suffering from the polycystic ovarian syndrome.

### Material and Methods

**Material:** A consent form, Paper, Plinth, Oil, Yoga mat, Scale sheets

Ethical clearance no. IECHR-SAINATH HOSPITAL/AHMC/19; An Experimental study was conducted on females suffering from anxiety and depression in polycystic ovarian syndrome and was assessed with Hospital anxiety and depression scale and polycystic ovarian syndrome questionnaire, 40 subjects fulfilling criteria were taken and randomized into two groups Group A was treated with Fertility Massage, Group B treated with YOGA.

**Inclusion Criteria** were Age 18-35 years Women Age 18-35 years, PCOS identified by a gynecologist, BMI from 25- 30kg/m<sup>2</sup>.

**Exclusion Criteria** were systemic illness, Hormonal drug within 1-month, Unstable vitals, Recent lower abdominal surgery, Carcinoma, Skin problems, Pregnant women.

Intervention pre-post outcomes for anxiety and depression were evaluated using the hospital anxiety and depression scale<sup>18</sup> and polycystic ovarian syndrome questionnaire<sup>19</sup>, in which group A was treated with Fertility Massage Patient position in Supine Lying Therapist Position Stride walking. The therapist palpates the femoral artery of the patient at the mid inguinal junction with the tip of the therapist's finger that resides in between the anterior superior iliac spine and symphysis pubis.

Hold for thirty to sixty seconds with a moderate amount of grip. Repeated on the opposite side. The therapist should perform the massage 3 times on each side, a day. 5day/week for six weeks, a Time scale of 10minutes, Dwell phase 60seconds Rest time 30seconds. And Group B was treated with some different poses of YOGA, Yoga therapy was given for 20 min for 5 days a week for 6 weeks. Yoga Asanas: Supine: Uttanpadasana, Pawanmuktasana, Naukasana, Setu-bandhsana. Prone: Bhujangasana, dhanur-asana. Sitting: Vakrasana, baddhakon-asana, Standing: Katichakrasana, ardhakatichakrasana, Dwikon-asana, padahastana. Pranayama: Bhramari pranayama, Nadi sodhana pranayama, Surya bhedana pranayama. Mudra: yoni mudra.

**Statistical Analysis:** Data were analyzed using SPSS version 26.0 as data follows normal distribution paired t test used for intragroup comparison of values and unpaired t-test was used for inter-group comparison of values as data distribution was normal, level of significance used in data with p<0.001 significant.

### Result

A total of 40 females were taken with polycystic ovarian syndrome as subjects in this study. These 40 subjects were randomly divided into two groups, 20 subjects in group A (Fertility massage) and 20 subjects in group B(YOGA). The data taken from Sainath Hospital and Aangan gynaec hospital was entered and analyzed by using SPSS (statistical package for social sciences) software version 26. The parametric t was used in statistical analysis because the distribution of data was normal. The paired t-test is used to see the pre and post-treatment effects. An unpaired t-test was used to compare both groups.

**Table 1:** Mean age of sleep deprived subjects based on gender.

AGE (FEMALE)	MEAN	SD
GROUP A	21.80	2.39
GROUP B	23.30	3.61

**Table 2:** Showing within group analysis with paired t-test for group A.

GROUP B	MEAN		SD		P value
	PRE	POST	PRE	POST	
HADS (Anxiety)	±9.90	±4.35	±4.35	±2.70	< 0.05
HADS (Depression)	±12.35	±8.05	±3.29	±2.39	< 0.05

**Table 3:**Table showing within group analysis with paired t-test for group B

GROUP A	MEAN		SD		P value
	PRE	POST	PRE	POST	
HADS (Anxiety)	9.0500	±6.1000	±3.89	±4.33	< 0.05
HADS (Depression)	11.100	±3.80	±3.83	±1.64	< 0.05

**Table 4:**Shows group analysis with paired t-test for group A (PCOSQ).

GROUP A	MEAN		SD		P value
	PRE	POST	PRE	POST	
PCOSQ (Emotion)	24.8500	33.45	10.13	6.99	< 0.05
PCOSQ (Weight)	19.55	25.30	7.73	6.11	< 0.05
PCOSQ (Body hair)	23.45	22.40	10.75	10.19	< 0.05
PCOSQ (Menstrual problem)	12.15	21.95	3.61	1.46	< 0.05
PCOSQ (Infertility)	10.75	24.75	3.73	1.06	< 0.05

**Table 5:** shows group analysis with paired t-test for group B (PCOSQ).

GROUP B	MEAN		SD		P value
	PRE	POST	PRE	POST	
PCOSQ (Emotion)	25.50	37.35	8.70	11.45	< 0.05
PCOSQ (Weight)	12.35	21.85	5.78	6.92	< 0.05
PCOSQ (Body hair)	26.10	26.60	9.62	7.25	< 0.05
PCOSQ (Menstrual problem)	14.65	17.20	5.84	5.12	< 0.05
PCOSQ (Infertility)	15.95	19.75	7.78	5.97	< 0.05

**Table 6:** Showing Comparison Between Group A and Group B Unpaired T-Test For HADS.

Outcome Measure		Mean	SD	P value
HADS (Anxiety)	Fertility Massage	6.1000	4.3395	< 0.05
	Yoga	4.3500	2.7003	< 0.05
HADS (Depression)	Fertility Massage	3.8000	1.64157	< 0.05
	Yoga	8.0500	2.39462	< 0.05

**Table 7:** showing comparison between group a and group B unpaired t-test For PCOSQ.

Outcome Measure		MEAN	SD	P value
PCOSQ (Emotions)	Fertility Massage	33.4500	6.99981	< 0.05
	Yoga	37.3500	11.45368	< 0.05
PCOSQ (Weight)	Fertility Massage	25.3000	6.11383	< 0.05
	Yoga	21.8500	6.92269	< 0.05
PCOSQ (Body Hair)	Fertility Massage	22.4000	10.19494	< 0.05
	Yoga	26.6000	7.25766	< 0.05
PCOSQ (Menstrual Problem)	Fertility Massage	21.9500	1.46808	< 0.05
	Yoga	17.2000	5.12579	< 0.05
PCOSQ (Infertility Problems)	Fertility Massage	24.7500	1.06992	< 0.05
	Yoga	19.7500	5.97252	< 0.05

## Discussion

The present study, Is to compare the effectiveness of fertility massage and yoga in polycystic ovarian syndrome on anxiety and depression.

In the present study group, A fertility massage was given for six weeks for five days a week Time scale- Ten minutes Dwell phase sixty seconds, rest time – thirty seconds and pre-post measures for anxiety and depression were measured, group A showed significantly improved Hospital anxiety and depression scale and polycystic ovarian syndrome questionnaire.

K.rekha et al 2018 did an experimental study with a total of 30 subjects suffering from PCOS where group A was given fertility massage with additional conventional exercise in a supine position for 30 to 60 seconds two times a day with thrice on each side, the other group was given conventional protocol with aerobic exercises that includes 5min warm-up that includes breathing and active exercises the other phase includes fifteen minutes of jog and walk, ten min of cool down that includes stretching of the main muscles of the body, the time taken for whole 1 yearly 30 to 40 minutes in this they concluded that for the females with PCOS fertility massage combined with conventional exercise is proved to have promising effect where they stated that this therapy leads to increased blood flow at the local region which enhance the supply of oxygen to the ovaries which cause breakage of the cyst and also decreased the stress. So, the study supports the finding of our study[16].

In the study group, B was given YOGA therapy was given for twenty min for five days, for 6 weeks. A total of 12 poses and pre-post measures for anxiety and depression were measured, which showed significantly improved scores for the Hospital anxiety and depression scale and polycystic ovarian syndrome questionnaire except for the body Hair component.

M Ezhil Ratnakumari et al 2018 took 50 subjects according to the Rotterdam criteria with age group 18-35. In the intervention yoga and naturopathy for 12 weeks six days per week for twenty min and in group B control group, the outcome in the form of USG BMI Circumferences for hip waist were taken and they concluded that the interventional group can be given as the initial treatment for PCOS and the reason behind is it results to improved lifestyle by regularizing insulin level. So, the study supports the present study of improved scoring in Group BSo, the study supports the finding of our study[17].

So, when we compared both the groups, group A showed more significantly improved score Hospital anxiety and depression scale and polycystic ovarian syndrome questionnaire because as there is relaxation at the abdomen region enhanced health of the egg with more blood oxygenation improved hormone levels due to improved blood supply moreover it decreases the number of cyst formation decreased blood glucose level, and insulin also regularize the cortisol that collectively believes the stress followed by anxiety and depression levels.

## Conclusion

Thus, We conclude that Fertility massage and yoga showed significant improvement in anxiety and depression but fertility massage showed more improvement.

## Limitations:

Long-term follow-up not taken; Mid-term (0-3 weeks) follow-up not taken. Future Scope: Sample size can be taken more Specified Age Group can betaken.

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