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Effect of Yogic Practices and Mantra Chanting on Haemoglobin and Self Confidence Among Pregnant Women

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Abstract: The goal of this randomized, controlled investigation was to determine whether or not prenatal yoga activities, namely mantra chanting, had any influence on haemoglobin levels or maternal feelings of self-confidence. Thirty pregnant women, ages 25 to 35, were chosen at random from the city of Chennai, India using a stratified random sample technique. Fifteen of the individuals were randomly assigned to Group I (the experimenters) and Group II (the controls). It was expected that pregnant women who engaged in yoga practices would show greater improvement in certain haematological and psychological measures than the control group. Before beginning the training session, both groups were given a preliminary test focusing on a few key dependent variables. The yoga practices of the experimental group lasted for 60 min, six days a week, for a full 12 weeks. Modified versions of the Asanas (postures) are followed by pranayama (breathing exercises), mudras (hand gestures), yoga nidra (deep sleep), and mantra chanting. The inactive-resting "control" group did not receive any therapy. Blood samples were used to measure hemoglobin levels, and the Rekha Agnihortry Standard Questionnaire was used to gauge self-confidence. Analysis of Co-Variance (ANCOVA) was used to analyze the data. The significance threshold was set at the 0.05 level throughout. The present study found that after 12 weeks of yoga practices, pregnant women exhibited a substantial change in haemoglobin (raised) and self-confidence (increased). The hypothesis was supported with a p-value of 0.05 or above. Therefore, it follows that Pregnant Women may benefit from Yogic practices like increased haemoglobin and self-confidence via their regular practice.

Keywords: Yoga, Pregnant women, Yogic practices, Mantra chanting, Haemoglobin, Self confidence

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Introduction

A healthy state of mind and body are inextricably linked. During pregnancy, a woman's hormone levels change drastically. Motherhood was revered in ancient India. Motherhood evokes a

broad variety of feelings in people. Some feelings include anticipation, apprehension, and anxiety. Haemoglobin is a protein found in red blood cells. Its job is to carry oxygen from the lungs to the

rest of the body. Pregnant women have a higher iron need since their blood volume doubles. In order for the infant to have enough oxygen, the body needs iron to make more blood. Anemia during pregnancy has been associated to a number of negative pregnancy outcomes, including premature delivery, low birth weight, infection, and bleeding. There is a physiological increase of 10–15 per cent in plasma volume between weeks 6 and 12 of pregnancy, followed by a rapid increase until weeks 30–34 of pregnancy. The result is a temporary decrease in maternal hemoglobin (Hb) levels. Increased tension and hopelessness are hallmarks of today's popular way of life. The scientists found a consistent pattern: Women's confidence dropped throughout pregnancy but rebounded in the six months after giving birth. However, following that, their confidence dropped again and continued to decline. For some women, the thought of going through labor and giving birth fills them with dread. A woman's sense of agency is severely hampered by this concern, which grows as the pregnancy nears its end. There is some evidence that pregnant women have varying degrees of anxiety about childbirth. The implications of this stress include a delay in bonding between mother and child and an increase in the use of analgesics and cesarean sections during labor. Pregnant women experiencing anxiety should have access to both medical and psychological support. Mantra: "Manah prasanna upaya yogah" Yoga is the key to mental peace. Integrating one's body, mind, and spirit into a state of balance is a fundamental tenet of yoga. The first stage of yoga practice, pranayama, focuses on controlling the breath. In contrast, asanas are yoga postures that may be practiced either actively or passively to target specific muscle groups. As the last step of a yoga practice, meditation fosters mental clarity and physical health. Yoga has been shown to alleviate physical and mental stress in pregnant women and boost confidence in their capacity to give birth. An examination of the existing literature finds that the vast majority of studies on the

benefits of yoga for expectant mothers have focused on its ability to alleviate low back pain, anxiety, melancholy, stress, and sleep problems. Pregnant women in the early (16 week), mid (16-34 week), and late phases of their pregnancies (34 week and after) may all benefit from yoga. To have a smooth delivery, a healthy pregnancy and baby, and to find peace and pleasure in the midst of the tremendous changes that accompany parenting, pregnant women should chant mantras throughout their pregnancies. Prenatal yoga and mantra chanting has been shown to have positive effects on blood pressure, anxiety, and immunity.

Causes:

- Stress
- A change in the size of the uterus
- Changes in the nutrient levels
- Hormonal changes
- Medication
- Lifestyle factors
- Preeclampsia

Symptoms:

- Headache that doesn't go away.
- Edema (swelling)
- Sudden weight gain.
- Vision changes, such as blurred or double vision.
- Nausea or vomiting.

The objective of the study was to find out whether there would be any significant difference on selected haematological variable such as haemoglobin and psychological variable such as self- confidence due to yogic practices and mantra chanting among Pregnant Women. It was hypothesized that there would be significant differences on haemoglobin and Self Confidence among Pregnant Women due to yogic practices and mantra chanting than the control group.

The delimitations of this study were- (i) Only

pregnant women in their second trimester participated in the research; (ii) Only residents of Chennai were considered for inclusion; (iii) The ages of the participants were limited to those between 25 and 35 years old; (iv) Only 12 weeks were included in the analysis; (v) Only yoga practices were used as independent factors; and (vi) Only hemoglobin and self-confidence were included as dependent variables in the research.

The limitations of this study were- (i) Considerations such as income level and education level were ignored; (ii) No thought was given to the weather forecast; (iii) Things like how people really live their lives were ignored; (iv) The typical routines of the subjects were ignored; and (v) The individuals' diets and medication schedules were strictly monitored.

Materials and Methods

Sixty women volunteered for the research, 45 were screened, and 30 pregnant women between the ages of 25 and 35 were chosen at random from Chennai and split into two groups (I and II) of 15 each. Before beginning the training program, each group (I and II) was given a preliminary test on the chosen dependent variables. Participants in Group I engaged in Yogic rituals for 60 minutes, six times each week, for a whole 12 weeks. Group I used Yogic practices such Loosening the Joint, Tadasana, Katichakrasana, Veerabhadrasana, Vrikshasana, Trikonasana, Badhakonasana, Bharadwajasana, Vajrasana, Marjariasana, Supta Baddhakonasana, Uttanapadasana, Sethubandasana, Matsyasana, and Pranayama practices such as Nadi Shodana Pranayama, Brahmari Pranayama followed by Yoga Nidra and mantra Chanting. Those in the second group (the "Control Group") were told to go about their daily lives as usual without receiving any special instruction during the duration of the trial.

Each group was retested on the same set of dependent variables (including haemoglobin and self-confidence) after 12 weeks. The significant differences between the experimental group and the control group were determined using analysis

of covariance (ANCOVA). A significance threshold of 0.05 was used for the test.

Results and Discussion

For both haemoglobin and self-confidence, the obtained F-ratio value was larger than the table value, indicating that there was a statistically significant difference between the pre- and post-adjusted means of the yogic practice group and the control group.

Results from the pre-test for haemoglobin were not significant at the 0.05 level since the F value of 0.02 achieved was less than the needed F value of 4.20. This demonstrated that the pre-test randomization was fair. The examination of post-test scores indicated a statistically significant difference between the groups, as the obtained F value of 4.98 above the minimum threshold of F value of 4.20. The post-test mean differences among participants were statistically significant. Adjusted mean scores were determined and statistical analysis was performed based on the differences in test results between the groups before and after therapy. The calculated value of F (10.01) was more than the minimum value of F (4.20). As a result, we know that 12 weeks of yoga practices and mantra chanting significantly improved haemoglobin levels in pregnant women. This research on haemoglobin agrees with the findings of a study by Jwa *et al.* (2015). To facilitate comprehension of the findings, Table 1 and Figure 1 present the ranked adjusted means for haemoglobin.

On the subject of pre-test scores for self-confidence, the resulting F value of 0.04 was lower than the necessary F value of 4.20 to achieve statistical significance at the 0.05 level. This demonstrated that the pre-test randomization was fair. Analysis of post-test scores indicated a statistically significant difference between the groups (F value of 306.11 > 4.20, indicating significance). Evidence that post-test mean differences among participants were statistically significant. Adjusted mean scores were determined and statistical analysis

Table 1: Computation of mean and Analysis of Co-variance (ANCOVA) of haemoglobin (g / dl) of experimental and control group

Test	Group-A Yogic Practices	Group-B Control Group	Source Of Variation	Degrees of Freedom	Sum of Squares	Mean Sum of Squares	F-Ratio
Pre	9.80	9.87	Between	1	0.03	0.03	0.02
			Within	28	60.13	2.15	
Post	11.07	9.87	Between	1	10.80	10.80	4.98*
			Within	28	60.67	2.17	
Adjusted Post	11.09	9.87	Between	1	11.65	11.65	10.01
			Within	27	31.42	1.16	

* Significant at 0.05 level of confidence. Table F ratio at 0.05 level of confidence for df 1 and 28 = 4.20, 1 and 27 = 4.21.

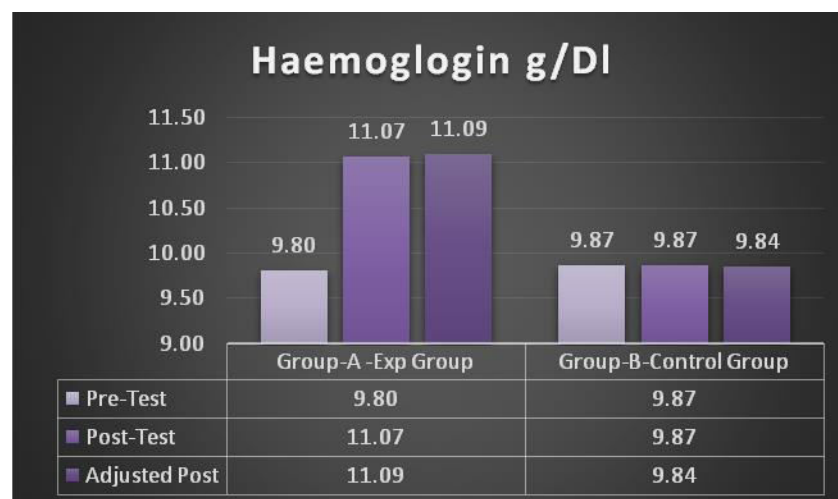


Fig. 1: Mean differences among the groups on haemoglobin (g/dl). *Significant at 0.05 level of confidence (Table F ratio at 0.05 level of confidence for df 1 and 28 = 4.20, 1 and 27 = 4.21).

was performed based on the differences in test results between the groups before and after therapy. $F(453.80) > F(4.20)$, hence the outcome was satisfactory. This demonstrated that 12 weeks of yoga practices significantly impacted (raised) self-confidence among pregnant women. Similar findings were found in a research done by Koyuncu *et al.* (2021)

Table 2 and Figure 2 depict the adjusted means in terms of self-confidence, with the order of the means emphasized for clarity.

Jwa *et al.* (2015) worked on whether or not maternal haemoglobin (Hb) levels impact birth outcomes is a topic of some disagreement. Variations in maternal Hb levels may influence birth outcomes. The study's goal was to determine whether or not changes in maternal Hb levels throughout pregnancy would affect the baby's development and the mother's ability to give birth to a healthy, full-term infant. Between 2010 and 2011, 1,986 women who delivered a single child at the National Center for Child Health

Table 2: Analysis of Co-variance (ANCOVA) of the means of two experimental groups and the control group on self- confidence (scores in marks)

Test	Group-A Yogic Practices	Group-B Control Group	Source Of Variation	Degrees of Freedom	Sum of Squares	Mean Sum of Squares	F-Ratio
Pre	37.07	37.40	Between	1	0.83	0.83	0.04
			Within	28	664.53	23.73	
Post	17.07	38.33	Between	1	3392.03	3392.03	306.11*
			Within	28	310.27	11.08	
Adjusted Post	17.13	38.27	Between	1	3344.47	3344.47	453.80
			Within	27	198.99	7.37	

* Significant at 0.05 level of confidence. Table F ratio at 0.05 level of confidence for df 1 and 28 = 4.20, 1 and 27 = 4.21.

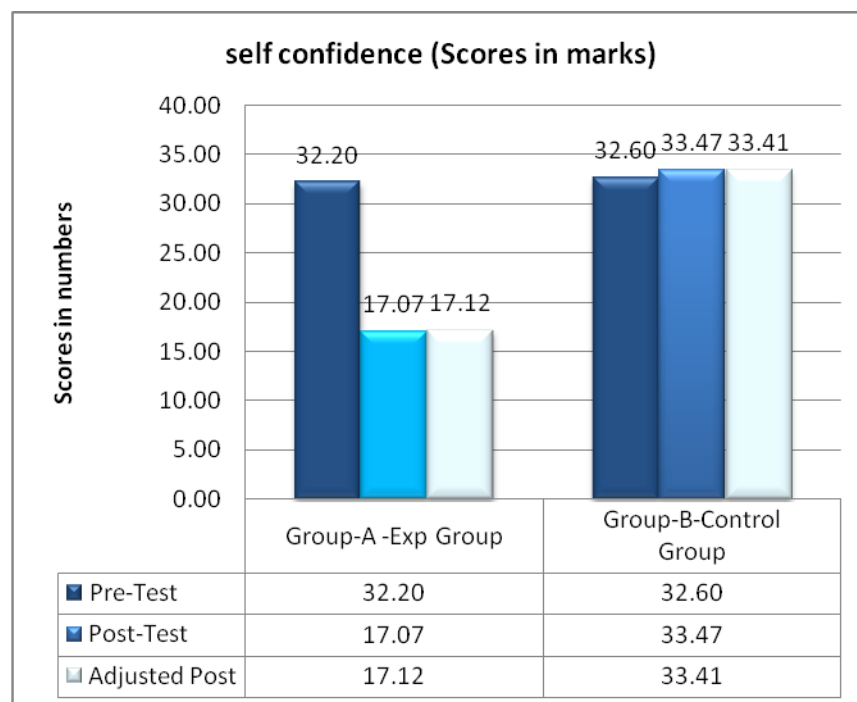


Fig. 2: Mean differences among the groups on self confidence (scores in marks). * Significant at 0.05 level of confidence.

and Development were surveyed between weeks 34 and 41 of pregnancy. Hb levels were measured between weeks 16 and 27, and again between weeks 28 and 36 of pregnancy. Birth outcomes (birth weight, Z-score of birth weight, placental weight, and placental ratio) and Hb levels were analyzed using multiple regression to determine

the association between maternal and fetal factors. Babies whose Hb levels declined more slowly from early to mid or late pregnancy had significantly lower birth weight, Z-score, placental weight, and placental ratio. Women who had the lowest reduction from early to late pregnancy were more likely to have babies that were low

birth weight (adjusted odds ratio [aOR] 2.0; 95% confidence interval [CI] 1.3-3.1) and small for gestational age (adjusted odds ratio [aOR] 1.6; 95% CI 1.04-2.3) compared to women who had the highest reduction from early to late pregnancy. Birth weight, placental weight, and placental ratio were all negatively correlated with maternal haemoglobin levels measured at various times throughout pregnancy.

Koyuncu *et al.* (2021) conducted a randomized controlled trial to examine the benefits of prenatal yoga on labor fear and birth confidence in the third trimester. The goal of this study was to determine whether regular yoga practice helps reduce pregnancy-related stress and boosts a mother's self-assurance in preparation for the birth. This study used a quasi-experimental approach, with randomized pre- and post-test groups for comparison. Participants were women who signed up for a prenatal education program at a hospital. There were 90 women that took part in the study. Researchers gathered information from participants using a variety of instruments, including the Individual Information Form, the Wijma Delivery Expectation/Experience Scale (Version A), and the Childbirth Self-Efficacy Scale. Women who did yoga regularly throughout their pregnancies were less anxious about giving birth and more confident in their abilities as birthing mothers. Women in the

control group expressed higher levels of worry and lower levels of confidence in their capacity to give delivery normally. The results of this study indicate that practicing yoga regularly may significantly increase mother confidence and significantly reduce maternal anxiety during delivery.

Conclusion

It is concluded that expectant women who engaged in yoga activities and chanted mantras had significantly higher levels of both haemoglobin and self-confidence. Pregnant mothers and their babies benefit from the safety and security offered by yogic activities like mantra chanting and relaxation techniques.

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