
“Effectiveness of Yoga on the outcome of labor among Primi Gravid”

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ABSTRACT

Background: Pregnancy and childbirth are natural physiological processes; however, primigravid women frequently experience anxiety, fear of labor, and physical discomfort that may adversely affect labor outcomes. Prenatal yoga, comprising selected asanas, breathing exercises, and relaxation techniques, has been recognized as a safe, non-pharmacological intervention that promotes physical fitness, psychological well-being, and preparedness for childbirth. Scientific evidence regarding its effectiveness on labor outcomes in the Indian setting remains limited.

Objectives: The study aimed to determine the effectiveness of prenatal yoga on labor outcomes among primigravid women. The specific objectives were to assess yoga compliance, evaluate yoga performance, compare labor outcomes between yoga and control groups, determine the association between yoga compliance and labor outcomes, assess the influence of yoga performance on labor outcomes, and compare the nature of delivery and maternal satisfaction among participants.

Methods: A quantitative, non-randomized controlled trial was conducted among **260 low-risk primigravid women** (130 in the Yoga Group and 130 in the Control Group) attending selected health centers in Raipur, Chhattisgarh. Participants in the yoga group received a structured prenatal yoga programme consisting of selected asanas, pranayama, and relaxation techniques from 20–22 weeks of gestation until delivery. Data were collected using structured assessment tools to evaluate yoga compliance, yoga performance, labor outcomes, maternal satisfaction, and neonatal outcomes. Statistical analysis was performed using descriptive and inferential statistics to compare outcomes between groups.

Results: Women who participated in the prenatal yoga programme experienced significantly better labor outcomes than those in the control group. The yoga group reported reduced labor pain, shorter duration of labor in all stages, a higher rate of normal vaginal deliveries, and fewer operative and induced deliveries. Neonatal outcomes were also significantly improved, including higher Apgar scores, healthier birth weights, lower incidence of fetal distress, and a greater proportion of full-term births. Furthermore, mothers demonstrating higher yoga compliance and better performance achieved more favorable maternal and neonatal outcomes than those with lower adherence. All major differences between the yoga and control groups were statistically significant ($p < 0.05$).

Conclusion: The findings demonstrate that structured prenatal yoga is a safe, effective, and economical intervention that significantly improves maternal and neonatal outcomes. Regular yoga practice reduces labor pain, shortens the duration of labor, promotes normal vaginal delivery, enhances neonatal well-being, and increases maternal satisfaction.

Incorporating prenatal yoga into routine antenatal care services may contribute to improved childbirth experiences and better maternal and neonatal health outcomes.

KEYWORDS: *Prenatal yoga, primigravida, labor outcome, normal vaginal delivery, maternal satisfaction, neonatal outcome, antenatal care, yoga compliance.*

BACKGROUND

Yoga is posited to contribute to prenatal comfort and support for childbirth in several ways. The gentle stretching that occurs during yoga asanas (postures) helps to relieve the musculoskeletal discomforts of pregnancy and prepares the pelvic and lower extremity muscles for child bearing (Collins, 1998). The breathing and relaxation techniques of yoga improve respiratory capacity that alleviates pregnancy-related shortness of breath and enhances breathing during labor (Narendran, 2005).¹⁶

Pregnancy and child birth are parts of a biological process, involving a series of predictable physiological phenomena and existential dimensions, that take place in a social and cultural context. At the same time, this process is unpredictable since the particular course of an individual pregnancy is not known in advance. Pregnancy and childbirth are unique live events (Holmes and Rahe, 1967).¹²

Nurses care for pregnant women in a holistic context, and are concerned about factors that place women at risk of unfavorable pregnancy outcomes; they value pregnancy highly as a normal experience, and want to facilitate those practices that lead to positive pregnancy outcomes whenever possible. There is clearly a need to explore preventive and health promoting activities, that advocate and foster healthy lifestyles among all women. Yoga is one of the health-promoting activities, that are posited to favorably impact physical and psychological well-being (Freedman, 2004).¹¹

Yoga Practice and Well-Being

Yoga is a system of practices aimed at achieving a sense of balance and wholeness. The word yoga is derived from the Sanskrit root yuj, which means to bind, join, or yoke in union or communion (Iyengar, 1979).¹³ The union of the individual self (jeevatma) with the universal self (paramatma) is yoga (Iyengar, 2001).¹⁴ Yoga consists of a variety of practices that include postures (asanas), breathing exercises (pranayama), meditation, relaxation, mantras, spiritual beliefs and specific principles for living (Iyengar, 1979).¹³ For over 2000 years, yoga has been demonstrated to improve flexibility, decrease muscle tension and stiffness, enhance cardiovascular and respiratory functioning, and enhance psychological well-being (Collins Narendran, et al., 2005).¹⁶

Pregnancy is a period of enormous physical and psychosocial adaptation in a woman's life. Pregnancy is a transformative experience that women typically embrace with optimism, joy, and a commitment to maintaining good health. Yet, intense antenatal surveillance and considerable emphasis on risk and danger, has supplanted the reality of pregnancy as a normal life process, characterized by prudent health behavior and a sense of well-being, (Wellock2007)²³. Prenatal yoga can be an excellent way to prepare for labor and delivery, with the use of numerous physical benefits.

Tension can lead to withholding of breath. But, with yoga preparation, one can identify the tension, soften the body, relax the thoughts and release the breath. Pranayama and breathing exercises can help manage the pain of contraction.

The main aim and importance of yoga is to facilitate easy delivery. Making use of the breathing technique, one can control the muscle and increase the efficiency of uterine contractions, while keeping the rest of the body relaxed. Breathing plays a crucial role in helping to push the baby out of the mother's body. Yoga helps pregnant women to cope and get a better hold on themselves during all these physical changes. For most of women, labor is a time of apprehension, fear, and agony. But, with proper antenatal preparation, a majority of women can experience an easy and painless labor and enjoy the labor with a sense of fulfillment (**Kathryn Curtis, 2012**).⁷

Yoga promotes the release of endorphins, which relaxes central nervous system and calms the mind. Endorphin levels rise in late pregnancy, as the body prepares for childbirth, it peaks from 38th week onwards until labor. Regular practice of yoga in pregnancy allows the mother to be relaxed and maximize endorphin release, in turn facilitating the release of oxytocin in labor, thereby initiating and maintaining rhythmic uterine activity. Endorphins are decreased in times of stress and anxiety; and research indicates that stress and anxiety disrupt and prolong labor, also the release of adrenaline in response to stress inhibits the action of endorphins and oxytocin. If the mother experiences pain in labor, then, fear, apprehension and tension arise leading to the release of adrenalin, resulting in ischemia and spasm of the uterus which results in more intense pain, and ultimately prevents the desired progress in a process of labor. The end result is long painful labor (**Sloane Philip, 1986**).²²

NEED FOR THE STUDY

Pregnancy and childbirth are natural physiological processes; however, the course and outcome of labor are influenced by the mother's physical fitness, emotional well-being, stress levels, and preparedness for childbirth. Primigravid women often experience fear, anxiety, and lack of confidence regarding labor, which may contribute to prolonged labor, increased perception of pain, higher rates of obstetric interventions, and lower maternal satisfaction. Identifying safe, cost-effective, and non-pharmacological interventions that can improve labor outcomes is therefore an important priority in maternal health care.

Yoga is a holistic mind-body practice that combines physical postures (asanas), breathing exercises (pranayama), relaxation, and meditation. During pregnancy, regular yoga practice has been reported to improve flexibility, muscle strength, breathing capacity, posture, circulation, and psychological well-being. It also promotes relaxation, reduces stress and anxiety, enhances pain tolerance, and prepares the mother physically and mentally for labor. Despite these potential benefits, yoga has not yet been incorporated as a routine component of antenatal care in many health facilities, particularly in resource-limited settings.

The Government of India emphasizes the promotion of maternal health through quality antenatal care and healthy lifestyle practices. However, structured antenatal yoga programs remain underutilized in many public health centers due to limited awareness, inadequate training of healthcare professionals, and insufficient scientific evidence from local populations. Moreover, few studies have evaluated the relationship between yoga

compliance, quality of yoga performance, and actual labor outcomes among primigravid women.

As a nursing professional, the researcher has observed that many primigravid women attending antenatal clinics experience fear of labor, reduced physical endurance, and increased dependence on medical interventions during childbirth. The researcher also observed that very few women receive guidance regarding yoga as a safe and effective antenatal practice. This highlighted the need to generate scientific evidence on the effectiveness of yoga in improving labor outcomes and maternal satisfaction.

Ambikapur, Chhattisgarh, has limited published research evaluating the effectiveness of antenatal yoga among primigravid women. Conducting this study in the selected health centers will provide locally relevant evidence regarding the influence of yoga on labor outcome, nature of delivery, maternal satisfaction, yoga compliance, and yoga performance. The findings may encourage healthcare providers, nurse educators, and policymakers to integrate structured prenatal yoga sessions into routine antenatal care services.

Therefore, the researcher felt a genuine need to undertake the present study entitled, "**A study to determine the effectiveness of Yoga on the outcome of labor among primigravid women in selected health centres of Raipur, Chhattisgarh.**" The findings of the study are expected to contribute to evidence-based nursing practice, promote positive childbirth experiences, reduce unnecessary obstetric interventions, and improve maternal and neonatal health outcomes.

STATEMENT OF THE PROBLEM

A study to determine the effectiveness of Yoga on the outcome of labor among primigravid women in selected health centers of **Raipur, Chhattisgarh.**

OBJECTIVES

1. To assess yoga compliance among the Yoga group participants.
2. To compare the labor outcome among Yoga and control group.
3. To assess the level of Yoga performance among the Yoga group.
4. To assess the labor outcome of the Yoga group based on their level of performance.
5. To assess the labor outcome of the Yoga group based on their Yoga compliance/activity level.
6. To compare the nature of delivery and level of satisfaction among the Yoga group.

HYPOTHESIS

- H1- There will be a significant difference in labour outcome in the Yoga group compared to control group.
- H2- There will be a significant difference in labour outcome based on activity / compliance of Yoga among the Yoga group.
- H3- There will be a significant change in the labour outcome in relation to Yoga performance of selected asanas among the Yoga group.

VARIABLE

DEPENDENT VARIABLE - Labour outcome

INDEPENDENT VARIABLE – Selected Yogasanas, breathing technique, relaxation technique

POPULATION

The target population of the study was normal primi mothers who were in the gestational age of 20-22 weeks, and who attended the antenatal outpatient department during the data collection period from January 2025 to August 202.

SAMPLE

The sample for the study constituted primi mothers who were in the low risk condition throughout the data collection period.

On the basis of pilot study and the adjustment of the sample size for an attrition rate of 10%. The sample size was arrived at 144 for each control and yoga group. While the data collection was in progress, a total of 260 women (130 in Yoga and 130 Control) could only be covered, and the data pertaining to those mothers were considered for the analysis.

SAMPLING PROCEDURE

A non probability purposive sampling technique was considered suitable for the study because of the nature of the population covered. The primi antenatal mothers were identified from the outpatient department were included in the study based on inclusion criteria.

SAMPLE INCLUSION CRITERIA

The criteria for the selection of mothers were,

1. Mothers should be primi gravid and within the age group of 20 -30 years.
2. They should be above 150cm in height.
3. They should only have a singleton baby in the gestational age of 20-22 weeks.
4. They should be without any prenatal complication.
5. They should deliver the child in the respective centres.
6. Those who are willing to participate in the study

SAMPLE EXCLUSIVE CRITERIA

1. Mothers with bad obstetric history in the family.
2. Those who were not regular in yoga practice.
3. Those who developed complications during yoga training
4. Those who cannot understand English or Tamil.
5. Those who practice any other exercise or asana

TABLE 3.4: INSTRUCTIONS FOR ASANA PERFORMANCE

S NO	ASANAS	TIME SET (MIN)	SCORE	BENEFITS
	Preliminary steps		10	
1	Basic stretching asana- 5	5		Helps to relax in between practice
2	Badhakonasana	6	10	Relaxes Inner thigh adductor: releases Lateral hip rotator
3	Upavistakonasana	2	5	Stretches the inner thigh, hip and groin relaxes the pelvic floor muscle
4	Malasana	2	5	Relaxes and stretches the pelvic floor muscle
5	Sukhasana	2	4	Relaxes inner thigh muscle Widens pelvic floor
6	Savasana	5-15	7	Reduces tension fear and increases muscle relaxation
7	Nadi shudi	4	6	Reduces stress ,calms the mind, increases oxygen
8	Sectional Breathing	4	3	Reduces stress ,calms the mind, increases oxygen for mother and fetus
	Total	30 -45	50	

FINDINGS AND CONCLUSION

Prenatal yoga has been widely recognized as an effective complementary practice for improving maternal health and pregnancy outcomes. With increasing awareness of pregnancy-related complications and the impact of modern lifestyles, many pregnant women

seek safe, non-pharmacological approaches to enhance their physical and psychological well-being. Yoga has emerged as one of the most accepted interventions through healthcare guidance, media, and community awareness.

The present study was undertaken to evaluate the effectiveness of a structured prenatal yoga programme in reducing labor difficulties and promoting favorable birth outcomes among primigravida women. Participants were recruited from two healthcare centers serving both rural and urban populations. A set of carefully selected yoga asanas, designed in consultation with yoga experts, focused on strengthening the pelvic floor muscles, improving flexibility, and promoting relaxation. A non-randomized controlled trial design was adopted, comprising a Yoga Group (YG) and a Control Group (CG). Outcomes were analyzed separately for normal vaginal deliveries and for all modes of delivery combined.

1. Outcomes Among Mothers with Normal Vaginal Delivery

a. Labor Pain

Comparison between the Yoga Group and the Control Group demonstrated that mothers practicing prenatal yoga experienced significantly lower levels of labor pain. A greater proportion of women in the yoga group reported moderate to severe pain, whereas a larger proportion of mothers in the control group experienced the worst degree of labor pain. These differences were statistically significant ($p < 0.01$), indicating that prenatal yoga effectively reduced perceived labor pain.

b. Duration of Labor

Women who practiced prenatal yoga experienced a shorter duration of labor across all stages. None of the mothers in the yoga group required more than 10 hours during the latent phase or more than 6 hours during the active phase. The second stage of labor was also considerably shorter, with very few mothers exceeding two hours. Compared with the control group, the yoga group demonstrated a statistically significant reduction in labor duration.

2. Outcomes Considering All Modes of Delivery

When all types of deliveries were analyzed together, the Yoga Group showed significantly better obstetric outcomes than the Control Group. The incidence of operative and induced deliveries was lower among women practicing yoga, while the proportion of normal vaginal deliveries was higher.

Neonatal outcomes also favored the yoga group. Babies born to mothers practicing yoga demonstrated improved Apgar scores, healthier birth weights (predominantly ≥ 3 kg), lower incidence of fetal distress, and a greater proportion of full-term births between 38 and 40 weeks of gestation. All these differences were statistically significant, indicating improved maternal and neonatal outcomes associated with prenatal yoga.

3. Influence of Yoga Practice Intensity Among Mothers with Normal Delivery

Within the Yoga Group, mothers who practiced yoga more consistently and at a higher level of activity achieved superior outcomes. They reported lower levels of labor pain and experienced shorter labor durations than mothers with lower levels of participation. Increased adherence to the yoga programme was associated with greater maternal comfort

and improved intrapartum well-being. Statistical analysis confirmed these findings to be significant.

4. Influence of Yoga Practice Intensity Among All Deliveries

Across all delivery types, mothers who maintained high levels of participation in prenatal yoga demonstrated the most favorable maternal and neonatal outcomes. These included a higher proportion of normal vaginal deliveries, improved Apgar scores, healthier neonatal birth weights, optimal gestational age at delivery, and minimal or no fetal distress. These findings suggest that greater adherence to prenatal yoga is associated with enhanced pregnancy and birth outcomes.

5. Overall Effect of the Yoga Programme

The present study evaluated the combined effect of the selected prenatal yoga practices rather than the individual contribution of each asana. The collective practice of yoga was found to produce significant improvements in maternal comfort during labor and neonatal health indicators, demonstrating the effectiveness of the comprehensive prenatal yoga programme.

CONCLUSION

The findings of this study indicate that a structured prenatal yoga programme provides significant benefits for primigravida women during pregnancy and childbirth. Regular yoga practice effectively reduces labor pain, shortens the duration of labor, increases the likelihood of normal vaginal delivery, decreases operative and induced deliveries, and improves neonatal outcomes, including birth weight, Apgar scores, gestational age, and fetal well-being. Furthermore, mothers who practiced yoga more consistently achieved greater health benefits than those with lower participation. Overall, prenatal yoga is a safe, effective, and economical intervention that can be incorporated into routine antenatal care to promote positive maternal and neonatal health outcomes.

Implications of the Study

The findings of the present study have important implications for nursing practice, nursing education, nursing administration, midwifery practice, and nursing research. The demonstrated benefits of prenatal yoga in improving maternal comfort and birth outcomes suggest that yoga can be incorporated as a complementary strategy within routine antenatal care.

Nursing Practice

The findings indicate that prenatal yoga is an effective, safe, and non-pharmacological intervention for promoting maternal well-being during pregnancy and labor. Regular yoga practice can help reduce labor pain, shorten the duration of labor, decrease the likelihood of operative deliveries, and improve neonatal outcomes. Women experiencing uncomplicated pregnancies may be encouraged to include prenatal yoga as part of their daily antenatal care routine under professional supervision.

Reduced maternal discomfort and improved physical and emotional well-being may facilitate early mother–infant bonding, successful breastfeeding, and faster postpartum recovery. Nurses working in antenatal clinics, maternity wards, and community health

settings should educate pregnant women regarding the benefits of prenatal yoga and motivate them to participate in supervised yoga programmes as part of comprehensive maternal care.

Significance to Midwifery

Midwives play a vital role in promoting normal childbirth and providing holistic maternity care. Knowledge regarding the benefits of prenatal yoga enables midwives to counsel pregnant women on safe complementary practices that support healthy pregnancy and physiological childbirth.

Incorporating prenatal yoga education into routine antenatal counseling can enhance women's confidence, improve physical preparedness for labor, reduce anxiety, and increase the likelihood of normal vaginal delivery. Midwives can also collaborate with certified yoga instructors to ensure that women receive appropriate guidance throughout pregnancy.

Nursing Education

The results of this study highlight the need to strengthen nursing education by incorporating evidence-based knowledge related to prenatal yoga and complementary therapies into undergraduate and postgraduate nursing curricula. Student nurses should receive theoretical knowledge and practical exposure regarding the role of yoga in promoting maternal and neonatal health.

Continuing Nursing Education (CNE) programmes, workshops, seminars, and in-service training should also be organized to update practicing nurses regarding current evidence on prenatal yoga and its application in maternity care. Community health nurses, auxiliary nurse midwives (ANMs), multipurpose health workers, and health visitors should be trained to educate antenatal mothers during home visits and community outreach programmes.

Nursing Administration

Nursing administrators have an important responsibility in promoting evidence-based maternity care. Hospital administrators should encourage the integration of supervised prenatal yoga sessions into routine antenatal services wherever feasible. Standard guidelines may be developed for implementing yoga programmes safely within maternity hospitals and primary healthcare centers.

At the policy level, nursing councils and healthcare administrators may consider incorporating prenatal yoga education into nursing curricula and maternal health programmes. Adequate infrastructure, trained instructors, and educational materials should be made available to facilitate successful implementation.

Nursing Research

The present study contributes to the growing body of evidence supporting prenatal yoga as a complementary intervention during pregnancy. However, further nursing research is required to strengthen the evidence base.

Future studies should employ robust research designs, larger sample sizes, multicenter settings, and long-term follow-up to evaluate maternal and neonatal outcomes. Additional research should also examine the physiological and psychological mechanisms through

which prenatal yoga influences pregnancy and childbirth. Such studies will assist in developing standardized prenatal yoga protocols for routine maternal healthcare.

RECOMMENDATIONS

Based on the findings of the present study, the following recommendations are proposed:

1. Methodological Recommendations

Future investigations should utilize randomized controlled trials with larger and more diverse populations to generate stronger evidence regarding the effectiveness of prenatal yoga. Standardized intervention protocols, validated assessment tools, and longer follow-up periods should be incorporated to improve the reliability and generalizability of findings.

Further studies should also evaluate the effectiveness of prenatal yoga among high-risk pregnancies, including women with pregnancy-induced hypertension, gestational diabetes mellitus, obesity, advanced maternal age, and other obstetric complications.

2. Evaluation of Individual Components of Yoga

Future research should investigate the independent effects of various components of prenatal yoga, including physical postures (asanas), breathing techniques (pranayama), meditation, mindfulness practices, and deep relaxation exercises. Understanding the contribution of each component may help identify the most effective elements for improving maternal and fetal outcomes.

Studies exploring the physiological mechanisms underlying prenatal yoga—such as its effects on maternal stress hormones, autonomic nervous system function, fetal heart rate variability, uterine activity, fetal movement, and maternal psychological well-being—would further strengthen the scientific evidence supporting its use.

3. Standardization of Prenatal Yoga Programmes

There is a need to develop standardized, evidence-based prenatal yoga protocols that specify the duration, frequency, intensity, and sequence of yoga practices appropriate for different stages of pregnancy. Such standardized programmes would improve consistency across clinical practice and research studies.

4. Community-Based Implementation

Community-based intervention studies should be conducted to evaluate the feasibility and effectiveness of integrating prenatal yoga into primary healthcare services, maternal health programmes, and antenatal clinics. Such initiatives may improve accessibility and encourage wider adoption of yoga among pregnant women.

5. Multidisciplinary Collaboration

Future research should encourage collaboration among nurses, obstetricians, physiotherapists, psychologists, midwives, and certified yoga practitioners to develop comprehensive prenatal wellness programmes. Interdisciplinary approaches will enhance maternal healthcare delivery and contribute to improved pregnancy and childbirth outcomes.

CONCLUSION

The present study demonstrates that prenatal yoga is a beneficial complementary intervention for primigravida women, resulting in reduced labor pain, shorter labor duration, improved maternal comfort, increased normal vaginal deliveries, and better neonatal outcomes. The findings support the integration of supervised prenatal yoga into routine antenatal care, nursing education, clinical practice, and maternal health policies. Continued research using rigorous methodologies will further establish prenatal yoga as an evidence-based strategy for promoting safe motherhood and improving maternal and neonatal health.

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