

# Evaluation of Maternal and Perinatal Outcome in Post-Dated Pregnancy

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**Abstract:** ***Introduction:** Post - dated pregnancy exceeding 40 weeks poses risks such as perinatal mortality doubles due to increased fetal weight, declining placental function, oligohydramnios, and meconium aspiration. It also heightens the risk of hypoxia during labour compared to term pregnancies, emphasizing the need for careful monitoring and timely intervention. Therefore, the present study aimed to evaluate the maternal and perinatal outcomes in post - dated pregnancy. **Methodology:** This prospective observational study enrolled 150 pregnant women with pregnancies beyond 40 weeks. Comprehensive patient assessments were conducted, including history, examinations, blood investigations, and diagnostic tests. Maternal and neonatal outcomes were recorded. **Results:** Most of the enrolled women belonged to the rural areas, aged 20 - 25 years, with 87.33% of pregnancies falling within 40 - 41 weeks. Full - term normal delivery (FTND) was the primary delivery mode (87.64%), with 77.42% induced and 93.10% spontaneous. NICU admissions were noted in 27 cases. Maternal and fetal complications affected 40.00% of cases, with oligohydramnios (16.00%) being the most prevalent. Higher Bishop's Scores were associated with an increased likelihood of LSCS and instrumental deliveries. Delivery mode varied with newborn weight, with LSCS being common for newborns weighing 2.5 kg or more. **Conclusion:** Post - dated pregnancies pose a heightened risk for both maternal and fetal outcomes, given the increased likelihood of morbidity for both the mother and the fetus.*

**Keywords:** Post dated, Maternal complication, Pregnancy outcome, NICU, Fetal complications

## 1. Introduction

A post - dated pregnancy exceeding 40 weeks or 280 days from the last menstrual period, is reported with an incidence of 4 - 14%. [1] Defined as extending to or beyond 42 weeks or 294 days, post - term pregnancies have an incidence of 5 - 10%. [1] Term pregnancy, occurring 3 weeks before to 2 weeks after the estimated due date, is reported at approximately 7%. [2] Prevalence variations depend on population characteristics and local management practices. The incidence of postdated pregnancy varies based on the use of history and clinical examination alone versus early pregnancy ultrasound estimation of gestational age. Early ultrasound assessments have reduced the "incidence" of postdated pregnancies by 50%. [3] To address terminology precision, a joint recommendation from the American College of Obstetricians and Gynecologists (ACOG), the Society for Maternal - Fetal Medicine (SMFM), and other professional societies suggests replacing the term "term" with "early term," "late term," and "post - term" to accurately describe deliveries occurring at or beyond 37 weeks of gestation. [4, 5] Postdated and post - term pregnancies inherently carry a high risk, with the potential for fetal distress and death due to progressive fetal hypoxia following placental insufficiency. [6] Perinatal mortality rates after 42 weeks are twice those at 40 weeks and increase up to threefold by 44 weeks [6]. Risks intensify with gestational age beyond 40 weeks, encompassing fetal complications such as hypoxia, intracranial damage, meconium aspiration syndrome (MAS), macrosomia, atelectasis, hypoglycemia, and stillbirths. Maternal risks include increased labour dystocia, a higher incidence of severe perineal injuries related to macrosomia, elevated rates of cesarean deliveries, and postpartum

haemorrhage. [7] The escalating risk to the fetus is attributed to factors such as increasing fetal weight, declining placental function, oligohydramnios leading to an elevated risk of cord compression, and the potential for meconium aspiration. [7] Therefore, we intended to evaluate the maternal and perinatal outcomes in post - dated pregnancy.

## 2. Material and Methods

This prospective observational study spanned from September 2022 to October 2023 in the Obstetrics and Gynaecology Department of Obstetrics and gynaecology, Rajarshi Dashrath medical college, Ayodhya. With ethical clearance and informed consent, 150 pregnant women were enrolled. Inclusion criteria comprised pregnancies beyond 40 weeks, singleton, cephalic presentation, and primigravida or multigravida status, with exclusion criteria encompassing complications like prior lower segment cesarean section, malpresentation, placenta previa, abruption, pregnancy - induced hypertension (PIH), gestational diabetes, anaemia, and fetal anomalies. Patient history, general examinations, and obstetric evaluations were conducted, including abdominal, speculum, and per vaginal examinations. Various blood investigations and diagnostic tests, such as USG Doppler and NST, were performed. Maternal and neonatal outcomes, including mode of delivery, perinatal morbidity (low APGAR score, meconium aspiration syndrome, NICU admission), and maternal complications (postpartum haemorrhage, perineal tear), were meticulously documented. Delivery routes were decided based on individual patient requirements, with some undergoing spontaneous labour and others requiring induction or caesarean section, with indications duly noted. The study also captured detailed

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socioeconomic information and categorized patients as booked or unbooked, considering age, gestational age, menstrual and obstetric history. This comprehensive approach ensured a thorough understanding of the factors influencing perinatal and maternal outcomes in post - dated pregnancies.

#### Statistical Analysis:

The data collected from all the patients were meticulously analyzed using Microsoft Excel, and the findings were presented in tables and graphs to facilitate a comprehensive understanding.

### 3. Results

The study encompassed individuals predominantly aged 20 to 25 years (78.67%), primarily primigravida (62.67%), and mostly residing in rural areas (56.67%). Delivery modes varied, with most opting for full - term normal delivery (FTND), followed by lower segment cesarean section (LSCS) and instrumental delivery. (Table - 1) Most pregnancies (87.33%) fell within the 40 weeks, 1 day to 41 weeks of gestational age. (Table - 2) For pregnancies at 40 weeks 1 day to 41 weeks, 78 deliveries occurred (87.64%). Among these, 24 (77.42%) were induced, while 54 (93.10%) occurred spontaneously. In the 41 weeks 1 day to 42 weeks category, there were 11 (12.36%), with 7 (22.58%) induced and 4 (6.90%) spontaneous. The total for both categories was 89 deliveries, with 31 (100.00%) induced and 58 (100.00%) spontaneous. (Figure - 1) Across both gestational periods, out of 150 cases, 123 babies (100.00%) stayed with the mother, while 27 babies (100.00%) were admitted to the NICU. There was a higher percentage of babies staying with the mother in both gestational periods, but NICU admissions notably increased in the 41 weeks 1 day to 42 weeks range. (Table - 3) Maternal and fetal complications affected 40.00% of cases, with oligohydramnios (16.00%) being the most prevalent complication, followed by fetal distress (7.33%). (Table - 4) The Bishop's Score was categorized into <4, 4 - 6, and >6. For FTND, out of 89 cases, 57 (87.69%) had a Bishop's Score of <4, 17 (40.48%) fell within the 4 - 6 range, and 15 (34.88%) had a score >6. In LSCS, among 54 cases, 7 (10.77%) had a Bishop's Score <4, 19 (45.24%) fell in the 4 - 6 range, and 28 (65.12%) had a score >6. For instrumental delivery, out of 7 cases, 1 (1.54%) had a Bishop's Score <4, 6 (14.29%) fell within the 4 - 6 range, and none had a score >6. Higher scores were associated with an increased likelihood of LSCS and instrumental deliveries. (Figure - 2) Table 5 categorized deliveries based on newborn weight: <2.5 kg, 2.5 - 3.5 kg, and >3.5 kg. Among newborns <2.5 kg, all 47 deliveries were FTND, with 12.96% via LSCS. In the 2.5 - 3.5 kg and >3.5 kg range, most were delivered via LSCS. (Table - 5)

### 4. Discussion

In this study, the predominant age group was 20 - 25 years, comprising 78.67%, followed by 26 - 30 years (18.67%) and 31 - 35 years (2.67%), with a mean age of 21.41±11.97 years. Consistent with our findings, Patel and Rathod [8] noted a majority in the 20 - 25 age group (79%) with a mean age of 23.56±2.75. Similarly, Mahapatro and Samal [9] reported that 55% fell within 21 - 25 years, with a mean age of 24.19±3.30 years. The study also revealed that the majority were

primigravida (62%), aligning with previous studies. [9 - 12] Furthermore, a significant proportion of cases (56.67%) hailed from rural areas, consistent with observations by Singh N et al. [11] and others [8], where 57% and 56% belonged to rural settings.

In this study, the majority of cases (59.33%) experienced full - term vaginal delivery (FTND), while 36.00% underwent lower segment cesarean section (LSCS), and 4.67% had instrumental delivery. This aligns with findings from Kandalgaonkar and Kose [12], where 46.9% of deliveries were spontaneous. Singh N et al. [11] reported 66% normal deliveries in their study, and Patel and Rathod [8] observed that 64% of cases underwent full - term vaginal delivery.

In this study, the preponderance of pregnancies, totalling 87.33%, occurred between 40 weeks 1 day to 41 weeks, with a smaller fraction, 12.67%, extending from 41 weeks 1 day to 42 weeks. This aligns with findings from Patel and Rathod [8], where 88% of pregnancies were within the 40 weeks 1 day to 41 weeks range. Maheshwari S et al. [10] also observed a majority falling within the range of 40 to 40 weeks and 6 days. Similar observations were reported by Kandalgaonkar and Kose [12].

Among 89 vaginal deliveries, 78 occurred within the gestational age range of 40 weeks 1 day to 41 weeks. Of these, 77.42% experienced spontaneous progression, while 93.10% involved labour induction. Additionally, 7 deliveries took place between 41 weeks 1 day to 42 weeks, with 22.58% progressing spontaneously and 6.90% requiring labour induction. This was in correspondence with the study by Patel and Rathod [8] and Singh N et al. [11]

In our study, the overall rate of LSCS was 36.00%. Notably, Patel and Rathod [8] reported a rate of 34%, Singhal P et al. [13] observed an LSCS rate of 16.7%, and Mahapatro and Samal [9] found it to be 28.9%. Regarding instrumental delivery, our study recorded a rate of 4.67%, while Patel and Rathod [8] reported a lower rate of 2%. Additionally, Mahapatro and Samal [9] noted an instrumental delivery rate of 5.72%.

In our investigation, oligohydramnios emerged as the predominant complication at 16.00%, with fetal distress following closely at 7.33%. A parallel study by Patel and Rathod [8] reported a comparable incidence of oligohydramnios at 17%. In contrast, Maheshwari S et al. [10] identified respiratory distress syndrome and respiratory distress with meconium - stained liquor as the primary complications, highlighting the variability in reported complications across studies.

A reduced Bishop's score is linked to induction failure and a decreased likelihood of vaginal delivery. In cases where the Bishop's score was <4, a maximum of 10.77% of participants underwent cesarean section due to fetal distress. A separate investigation by Kandalgaonkar and Kose [12] found that 74% of participants had a Bishop score <4. Patel and Rathod [8] reported a higher incidence, indicating that 86% underwent cesarean section for fetal distress among those with a Bishop's score <4.

Throughout both gestational periods, 123 newborns stayed with the mother, while 27 babies were admitted to the NICU. The data indicated a consistently high percentage of newborns staying with the mother in both gestational periods but a noticeable surge in NICU admissions, particularly in the 41 weeks 1 day to 42 weeks range. Notably, pregnancies beyond 41 weeks showed an increased NICU admission rate, aligning with findings from Patel and Rathod [8], where the NICU admission rate was 33.33%. Maheshwari S et al. [10] reported a NICU admission rate of 15%, while other studies observed NICU admission rates of 12.5%. [11, 12] These variations underscored the importance of gestational age in influencing neonatal outcomes and the need for tailored care in prolonged pregnancies. Timely initiation of labour is critical for optimal perinatal outcomes in postdatism. Diagnosing postdatism, confirmed by first - trimester ultrasound and LMP, is pivotal. Management involves careful guidance and monitoring to reduce complications. Accurate gestational age determination is vital, and utilizing tools like biophysical profiles and electronic fetal monitoring enhances outcomes. Beyond 41 weeks, confirmed dates may warrant elective delivery, reducing the need for instrumental delivery and associated complications. Recognizing and managing risk factors are crucial for minimizing adverse outcomes in post - term gestation.

## 5. Conclusion

Consistent antenatal check - ups play a crucial role in reducing the incidence of post - date pregnancies mitigating the associated risks to the fetus. Prolonged gestation beyond 40 weeks is linked to heightened perinatal morbidity and mortality, particularly among those who do not undergo regular antenatal check - ups. Given the maternal and neonatal complications related to extended pregnancies, it is imperative to discourage pregnancies from going post - term. Offering induction of labour before 42 weeks gestation is advisable to avert adverse neonatal consequences. Confirming the precise term of pregnancy becomes pivotal, especially for patients lacking regular menstrual history and accurate last menstrual period (LMP) information. First - trimester ultrasound serves as a vital non - invasive method, readily available for confirming the diagnosis. Further research is warranted to delve deeper into the impact of regular antenatal check - ups on reducing the incidence of post - date pregnancies and associated outcomes. Research on the efficacy of timely labour induction for preventing adverse neonatal outcomes and the accessibility of first - trimester ultrasound for confirming gestational age can enhance clinical practices. Longitudinal studies evaluating the benefits of proactive antenatal care and interventions are crucial for refining guidelines and improving maternal and neonatal health outcomes.

**Conflict of Interest:** All authors declare no conflict of interest.

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**Consent:** As per international or university standards, the authors have collected and preserved written participant consent.

**Ethical Approval:** As per international or university standards, the author (s) has collected and preserved written ethical permission.

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Tables and Figures

**Table 1:** Demographic parameters of enrolled women (N=150).

Demographics	Number	Percentage
<b>Age (years)</b>		
20 - 25	118	78.67%
26 - 30	28	18.67%
31 - 35	4	2.67%
<b>Parity</b>		
Primigravida	94	62.67%
Multigravida	56	37.33%
<b>Residence</b>		
Rural	85	56.67%
Urban	65	43.33%
<b>Mode of Delivery</b>		
FTND	89	59.33%
LSCS	54	36.00%
Instrumental Delivery	7	4.67%

**Table 2:** Distribution of cases according to period of gestation (N=150).

Period of Gestational	Number	Percentage
40 weeks 1 day to 41 weeks	131	87.33%
41 weeks 1 day to 42 weeks	19	12.67%

**Table 3:** Distribution of cases according to fetal outcome (N=150).

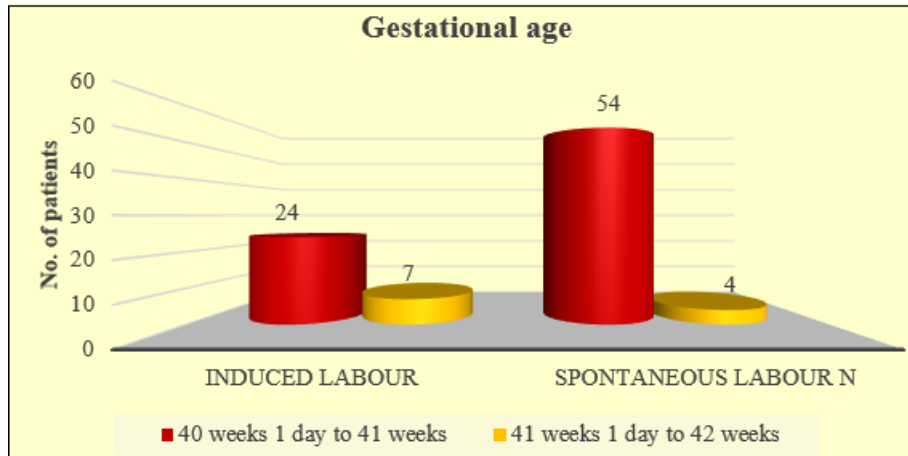
Fetal Outcome		Total number of cases		Baby with mother		NICU	
		N	%	N	%	N	%
<b>Gestational Age</b>	40 weeks 1 day to 41 weeks	131	87.33%	111	90.24%	20	74.07%
	41 weeks 1 day to 42 weeks	19	12.67%	12	9.76%	7	25.93%
<b>Total</b>		150	100.00%	123	100.00%	27	100.00%

**Table 4:** Distribution according to maternal and fetal complications (N=60).

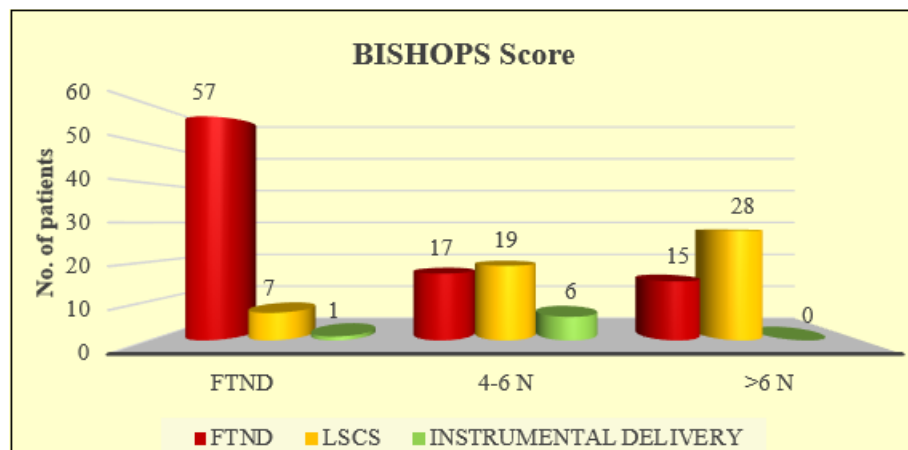
Maternal and Fetal Complication	Total number of cases	
	N	%
Oligohydramnios	24	16.00%
Perineal tear	7	4.67%
Atonic PPH	5	3.33%
Shoulder Dystocia	6	4.00%
Fetal Distress	11	7.33%
Meconium aspiration syndrome	4	2.67%
IUGR	3	2.00%
<b>Total</b>	<b>60</b>	<b>40.00%</b>

**Table 5:** Outcome according to the birth weight.

Weight	N=150	TYPE OF DELIVERY					
		FTND		LSCS		Instrumental Delivery	
		N	%	N	%	N	%
<2.5	47	47	52.81%	7	12.96%	0	0.00%
2.5 - 3.5	91	38	42.70%	39	72.22%	7	100.00%
>3.5	12	4	4.49%	8	14.81%	0	0.00%



**Figure 1:** Comparison of gestational age with type of delivery (FTND; n=89).



**Figure 2:** Outcome according to the Bishop's score.