International Journal of Health Sciences and Research
[Indexed, Peer-Reviewed Journal]
Volume 16; Issue: 2; February 2026
Website: www.ijhsr.org
Original Research Article *ISSN: 2249-9571*

Observational Study of Maternal and Perinatal Outcomes in Cases of Induction of Labor

Priyal Macwan[1], Shreya Mehta[2], Rohit Jain[3]

[1]Consultant Obstetrician and Gynecologist, Manav Hospital, B-9/10, Krishnaleela Society, Harni–Warasia Road, Vadodara, Gujarat, India
[2]Consultant Obstetrician and Gynecologist, Plot No. 1326/2, Sector 7D, Gandhinagar, Gujarat 382007, India
[3]Associate Professor, GMERS Medical College, Gandhinagar, Gujarat 382016, India

Corresponding Author: Dr. Rohit Jain

DOI: https://doi.org/10.52403/ijhsr.20260222

ABSTRACT

Background: Induction of labor (IOL) is a frequently employed obstetric intervention performed when continuation of pregnancy poses a greater risk to the mother or fetus than delivery. With rising global induction rates, concerns persist regarding induction failure, increased caesarean section rates, and associated maternal and neonatal morbidity, particularly in low- and middle-income countries. There is limited region-specific data from tertiary care centers in India evaluating outcomes following labor induction.
Objectives : To study the indications, methods, and outcomes of induction of labor and to assess maternal and perinatal morbidity and mortality associated with induced labor. The study also aimed to identify factors influencing the success or failure of induction, with particular emphasis on the Modified Bishop score.
Methods: This institution-based observational study was conducted in the Department of Obstetrics and Gynaecology at GMERS Medical College and Civil Hospital, Gandhinagar, over a period of 12 months. A total of 152 pregnant women with gestational age ≥37 weeks who underwent induction of labor for medical or obstetric indications were included. Data regarding sociodemographic characteristics, indications for induction, methods used, induction-to-delivery interval, mode of delivery, maternal complications, and neonatal outcomes were collected and analyzed using IBM SPSS version 22. Statistical significance was set at $p<0.05$.
Results: The incidence of induction of labor was 16.3%. Premature rupture of membranes (43.4%) was the most common indication, followed by post-dated pregnancy (25%) and pre-eclampsia (17.8%). Vaginal delivery was achieved in 65.8% of cases, while 34.3% required caesarean section, most commonly due to induction failure (50%). A Modified Bishop score ≤5 was significantly associated with higher caesarean rates ($p<0.001$). Postpartum hemorrhage (27.6%) was the most frequent maternal complication. Fetal distress (7.9%) and NICU admission (17.8%) were significantly higher among caesarean deliveries, though Apgar scores remained comparable.
Conclusion: Induction of labor is an effective obstetric intervention when appropriately indicated. However, failed induction is associated with increased maternal and neonatal morbidity. Careful patient selection, assessment of cervical favorability, and individualized induction protocols are essential to optimize outcomes.

MeSH *Keywords:* Induction of Labor; Bishop Score; Cesarean Section; Postpartum Hemorrhage; Neonatal Outcomes

INTRODUCTION

Induction of labor (IOL) is a commonly practiced obstetric intervention aimed at initiating uterine contractions artificially before the spontaneous onset of labor, with the objective of achieving a safe vaginal delivery.[1] It is undertaken when continuation of pregnancy poses a greater risk to the mother or fetus than delivery. Over the past few decades, the frequency of labor induction has increased significantly worldwide due to improved antenatal surveillance, better understanding of high-risk pregnancies, and evolving clinical guidelines.[2] As a result, induction of labor has become an integral component of modern obstetric practice.

Labor induction is indicated in a variety of maternal and fetal conditions, including post-dated pregnancy, premature rupture of membranes (PROM), hypertensive disorders of pregnancy, gestational diabetes mellitus, intrauterine growth restriction (IUGR), and oligohydramnios.[3] In such situations, timely delivery can reduce the risk of complications such as stillbirth, maternal morbidity, and neonatal compromise. However, despite its potential benefits, induction of labor is not without risks.[4] Concerns have been raised regarding increased rates of failed induction, prolonged labor, operative vaginal delivery, and caesarean section, particularly in primigravida women and in those with an unfavorable cervix.[5]

Various methods are available for induction of labor, broadly classified into pharmacological and mechanical techniques. Pharmacological agents include prostaglandins for cervical ripening and oxytocin for stimulation of uterine contractions, while mechanical methods include artificial rupture of membranes and the use of balloon catheters. The choice of induction method depends on multiple factors such as gestational age, parity, cervical status, maternal comorbidities, and institutional protocols. The Modified Bishop score is widely used to assess cervical favorability and predict the likelihood of successful induction. A low Bishop score is associated with increased chances of induction failure and operative delivery.[6]

Maternal outcomes following induction of labor include postpartum hemorrhage, uterine hyperstimulation, infection, prolonged hospital stay, and increased operative interventions.[7] From the fetal perspective, induction may influence outcomes such as fetal distress, low Apgar scores, neonatal intensive care unit (NICU) admission, respiratory complications, and perinatal mortality.[8] While several studies suggest that induction performed for appropriate indications improves perinatal outcomes, others report higher maternal and neonatal morbidity when compared to spontaneous labor.[9] These variations highlight the importance of careful patient selection, appropriate timing, and judicious use of induction methods.[10,11]

In low- and middle-income countries, including India, the impact of labor induction on maternal and perinatal outcomes is influenced by resource availability, patient demographics, and variations in clinical practice. There is limited region-specific data evaluating the outcomes of induced labor in tertiary care settings. Therefore, an observational study assessing maternal and perinatal outcomes in cases of induction of labor was conducted in a cohort of Indian women to understand its effectiveness, safety profile, and associated risk factors.

MATERIALS AND METHODS

The present study was conducted as an institution-based observational study in the Department of Obstetrics and Gynaecology at GMERS Medical College and Civil Hospital, Gandhinagar, Gujarat. The study was carried out over a period of 12 months, from April 2024 to March 2025, after obtaining approval from the Institutional Ethics Committee. The study aimed to evaluate maternal and perinatal outcomes in women undergoing induction of labor, along with factors influencing the success or failure of induction.

The study population comprised pregnant women admitted to the labor room who

required induction of labor for obstetric or medical indications. A consecutive sampling technique was used, and recruitment continued until the calculated sample size was achieved. Based on Cochran's formula and considering a 10.3% anticipated caesarean section rate following induction of labor, as reported in previous literature, the final sample size was fixed at 152 participants after accounting for a 10% non-response rate.

Women were included in the study if they had a gestational age of more than 37 weeks, provided informed consent, and had a clear medical or obstetric indication for induction of labor. Indications included post-dated pregnancy, premature rupture of membranes, hypertensive disorders of pregnancy, oligohydramnios, intrauterine growth restriction, and gestational diabetes mellitus. Women with a history of previous caesarean section or hysterotomy, placenta previa, abruptio placentae, malpresentation, cephalopelvic disproportion, pelvic tumors, local genital infections, or significant anemia were excluded from the study to minimize confounding risks.

After admission, detailed demographic information and obstetric history were recorded, including age, gravidity, parity, history of abortions, gestational age, and presenting complaints. A thorough general and systemic examination was performed, followed by obstetric examination to assess uterine size, fetal lie, presentation, and fetal heart rate. Per speculum and per vaginal examinations were conducted to evaluate cervical status. Cervical readiness was assessed using the Modified Bishop score, which guided the selection of the induction method.

Ultrasonography was performed in all cases to confirm gestational age, assess fetal well-being, determine amniotic fluid index, placental position, and identify any fetal complications. Based on clinical findings and institutional protocols, labor induction was initiated using pharmacological methods (cerviprime gel and/or oxytocin infusion), mechanical methods (artificial rupture of membranes), or a combination of these techniques.

Participants were closely monitored throughout labor. The time interval from initiation of induction to onset of labor, progression to active labor, and delivery was documented. Continuous fetal heart rate monitoring was performed to detect fetal distress, and maternal vitals were regularly assessed. The mode of delivery—spontaneous vaginal delivery, instrumental delivery, or lower segment caesarean section—was recorded, along with the indication for operative delivery when applicable.

Maternal outcomes such as postpartum hemorrhage, uterine hyperstimulation, nausea, vomiting, sepsis, and other intrapartum or postpartum complications were documented. Neonatal outcomes including Apgar scores at 1 and 5 minutes, fetal distress, NICU admission, neonatal hypoglycemia, hyperbilirubinemia, and perinatal mortality were also recorded.

Data were entered into Microsoft Excel and analyzed using IBM SPSS version 22. Continuous variables were expressed as mean ± standard deviation, while categorical variables were presented as frequencies and percentages. Appropriate statistical tests, including Student's t-test and Chi-square test, were applied, and a p-value of <0.05 was considered statistically significant. All participants were informed about the study in their native language, assured of confidentiality, and informed consent was obtained prior to enrollment.

RESULTS

During the study period, a total of 932 deliveries were conducted at the study institution, of which 152 women required induction of labor, giving an incidence of induction of labor of 16.3%. The sociodemographic and obstetric characteristics of the study population revealed that the majority of women were young, with nearly half (48.7%) belonging to the 20–24 years age group, followed by 25.7% in the 25–29 years age group.

Adolescents below 20 years constituted 9.2%, while women aged 35 years and above accounted for 7.9%. Most participants (75%) presented at term gestation, whereas 25% were post-dated pregnancies. More than half of the women were primigravida (53.3%), while multigravida women constituted 46.7%. A previous history of abortion was absent in the majority (80.9%), with only 15.8% having one prior abortion and 3.3% having more than one. The most common presenting symptom was leaking per vaginum, reported by 42.8% of women, followed by abdominal pain in 25%. Other symptoms included blurring of vision (6.6%), vomiting (4.6%), epigastric pain (3.9%), and headache (2.6%). Premature rupture of membranes (PROM) was the leading indication for induction of labor, seen in 43.4% of cases, followed by post-dated pregnancy (25%) and pre-eclampsia (17.8%). Other indications included oligohydramnios (5.9%), intrauterine growth restriction (4.6%), and gestational diabetes mellitus (3.3%). (Table 1)

Table 1. Sociodemographic characteristics of the patients (N=152)

Parameters	Frequency	Percentage
Age group		
<20	14	9.2
20-24	74	48.7
25-29	39	25.7
30-34	13	8.6
35 and above	12	7.9
Gestational age		
Term	112	75
Post-dated	38	25
Gravida		
1	81	53.3
2	35	23
3	23	15.1
>3	13	8.6
Abortion		
None	123	80.9
1	24	15.8
>1	5	3.3
Symptoms		
Abdominal pain	38	25
Leaking per vaginum	65	42.8
Vomiting	7	4.6
Epigastric pain	6	3.9
Headache	4	2.6
Blurring of vision	10	6.6
Diagnosis		
Gestational diabetes mellitus	5	3.3
IUGR	7	4.6
Oligohydramnios	9	5.9
Pre-eclampsia	27	17.8
Post-dated	38	25
Premature rupture of membrane	66	43.4

Regarding labor-related characteristics, the most commonly employed method of induction was a combination of cerviprime gel, oxytocin infusion, and artificial rupture of membranes (ARM), used in 61.8% of women. Cerviprime gel alone was used in 23% of cases, ARM combined with oxytocin in 11.8%, oxytocin alone in 2%, and ARM alone in 1.3%. Following induction, 66.5% of women entered the active phase of labor within 1–12 hours, while 17.8% progressed within one hour. A smaller proportion

required 12–24 hours (13.2%) or more than 24 hours (2.6%) to reach the active phase. Almost half of the women (49.3%) delivered within 12 hours of induction, and 45.4% delivered between 12 and 24 hours, while only 5.3% required more than 24 hours to deliver. Spontaneous vaginal delivery was achieved in 47.4% of cases, instrumental vaginal delivery in 18.5%, and lower segment caesarean section (LSCS) in 34.3%. Among the women who underwent caesarean section, the most common indication was induction failure (50%), followed by obstructed labor (23.1%) and fetal distress (15.4%). Other indications included cord prolapse (3.8%), meconium-stained liquor with fetal distress (3.8%), second-stage arrest (1.9%), and non-progress of labor (1.9%). Overall, induction failure was observed in 34.2% of cases, while successful induction leading to vaginal delivery occurred in 65.8%. (table 2)

Table 2. Labor related characteristics of patients (n=152)

Parameters	Frequency	Percentage
Method of induction		
Artificial rupture of membrane	2	1.3
Cerviprime gel	35	23
Oxytocin	3	2
ARM + oxytocin	18	11.8
Cerviprime gel + oxytocin + ARM	94	61.8
Time to active stage of labor		
<1 hour	27	17.8
1-12 hours	101	66.5
12-24 hours	20	13.2
>24 hours	4	2.6
Time to delivery		
<12 hours	75	49.3
12-24 hours	69	45.4
>24 hours	8	5.3
Mode of delivery		
Instrumental delivery	28	18.5
NVD	72	47.4
LSCS	52	34.3
Indication of caesarean section (n=52)		
2nd stage arrest	1	1.9
Cord prolapses	2	3.8
Foetal distress	8	15.4
Induction failure	26	50
Meconium-stained liquor with foetal distress	2	3.8
Non-progress of labor	1	1.9
Obstructed labor	12	23.1
Induction failure		
Yes	52	34.2
No	100	65.8

A significant association was observed between the Modified Bishop score and induction outcome. Among women with a Bishop score ≤5, 73.1% required caesarean section, whereas only 26.9% of women with a score >5 underwent LSCS. This association was statistically significant ($p < 0.001$), indicating that a favorable cervical status was strongly predictive of successful induction and vaginal delivery. (table 3)

Table 3. Association between modified Bishop Score and induction outcomes (n=152)

modified Bishop Score	Vaginal deliveries		LSCS		Total		p-value
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	
≤5	33	33	38	73.1	71	46.7	<0.001*
>5	67	67	14	26.9	81	53.3	
Total	100	100	52	100	152	100	

Maternal adverse events were documented and compared between vaginal deliveries and LSCS. Postpartum hemorrhage (PPH) was the most common maternal complication, occurring in 27.6% of cases overall and significantly more frequently among women who underwent caesarean section (40.4%) compared to those with vaginal delivery (21%) (p = 0.002). Other maternal complications included nausea and vomiting (17.8%), uterine hyperstimulation (7.3%), precipitate labor (6.6%), and sepsis (5.1%), though these did not show statistically significant differences between the two groups. No cases of uterine rupture were observed during the study period. (table 4)

Table 4. Maternal adverse events distribution of patients (n=152)

Adverse events	Vaginal deliveries		LSCS		Total		p-value
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	
Nausea and vomiting	18	18	9	17.3	27	17.8	0.916
Uterine hyperstimulation	8	8	3	5.8	11	7.3	0.772
Precipitate labor	8	8	2	3.8	10	6.6	0.434
Cord prolapses	0	0	1	1.9	1	0.7	0.164
Uterine rupture	0	0	0	0	0	0	-
PPH	21	21	21	40.4	42	27.6	0.002 *
Sepsis	1	1	2	3.8	3	5.1	0.694

Analysis of fetal and neonatal outcomes showed that fetal distress occurred in 7.9% of cases and was significantly more common in women who required LSCS (17.3%) compared to those who delivered vaginally (3%) (p = 0.002). NICU admission was required in 17.8% of neonates, with a significantly higher proportion among caesarean deliveries (26.9%) than vaginal deliveries (13%) (p = 0.033). The mean Apgar scores at 1 minute and 5 minutes were comparable between the two groups and remained within normal limits. Neonatal hypoglycemia was observed in 4.6% of cases, and neonatal hyperbilirubinemia in 9.9%, without statistically significant differences between modes of delivery. There were no stillbirths, and neonatal mortality was low, with only one neonatal death (0.7%) reported during the study. (table 5)

Table 5. Foetal and neonatal adverse events distribution of patients (n=152)

Adverse events	Vaginal deliveries		LSCS		Total		p-value
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	
Foetal distress	3	3	9	17.3	12	7.9	0.002*
NICU admission	13	13	14	26.9	27	17.8	0.033*
APGAR 1 min	7.8	0.7	7.9	0.8	7.9	0.6	0.627
APGAR 5 mins	9.1	0.6	9.2	0.6	9.1	0.6	0.347
Stillbirth	0	0	0	0	0	0	-
Neonatal hypo-glycemia	4	4	3	5.8	7	4.6	0.622
NNHB	9	9	6	11.5	15	9.9	0.619
Neonatal mortality	1	1	0	0	1	0.7	0.469

DISCUSSION

The present study evaluated maternal and perinatal outcomes following induction of labor (IOL) in a tertiary care setting, with particular emphasis on indications, methods used, success rates, and associated complications. In this study, the incidence of induction of labor was 16.3%, which is comparable to the incidence reported by Soni et al. (2017), who observed an induction rate of 13.6%, and by Lawani et al. (2014) in resource-limited settings.[6,12] The majority of women undergoing induction were young, with most patients belonging to the 20–24-year age group, and more than half were primigravida. Similar demographic trends were reported by Asghar et al. (2010) and Soni et al. (2017), who noted that labor induction is more frequently required in younger and nulliparous women.[12,13] Primigravida status is known to be associated with an unfavorable cervix and prolonged labor, which may influence induction outcomes.

Premature rupture of membranes (PROM) emerged as the most common indication for induction in the present study, followed by post-dated pregnancy and pre-eclampsia. These findings are consistent with those of Abisowo et al. (2017), who identified post-dated pregnancy and hypertensive disorders as the predominant causes.[14] PROM necessitates induction due to the increased risk of ascending infection and neonatal sepsis if labor does not ensue spontaneously. Ashwal et al. (2016) also demonstrated that prolonged PROM was associated with a higher risk of caesarean section, supporting early induction in such cases.[15]

Post-dated pregnancy accounted for 25% of inductions in this study. Prolonged gestation is associated with increased risks of stillbirth, macrosomia, and meconium aspiration. Jeer et al. (2023), in a systematic review and meta-analysis, showed that induction at 41 weeks significantly reduced stillbirth and perinatal mortality when compared with expectant management.[16] The present findings support timely induction in post-dated pregnancies to minimize adverse outcomes.

A combination of cerviprime gel, oxytocin, and artificial rupture of membranes (ARM) was the most frequently used induction method in this study. This multimodal approach was associated with reasonable induction-to-delivery intervals, with the majority of women entering active labor within 12 hours and delivering within 24 hours. Similar observations were reported by Soni et al. (2017) and Zhao et al. (2017), who noted shorter labor durations when pharmacological and mechanical methods were combined.[12, 17] Darney et al. (2013) also emphasized that oxytocin is effective when used judiciously in women with a favorable cervix, though careful monitoring is essential to avoid uterine hyperstimulation.[10]

The overall caesarean section rate in the present study was 34.3%, with induction

failure being the most common indication. This finding aligns with Tandu-umba et al. (2013) and Dagli et al. (2021), both of whom reported higher caesarean rates following failed induction, especially in women with an unfavorable Modified Bishop score.[8,18] A significant association was observed between low Bishop score (≤5) and induction failure in this study, reinforcing the predictive value of cervical status. Zenzmaier et al. (2017) similarly demonstrated increased odds of caesarean delivery in induced labor, particularly when cervical readiness was poor.[19]

In contrast, Darney et al. (2013) and Lee et al. (2016) reported that elective induction at term, especially at 39 weeks, was associated with lower caesarean rates in selected populations.[10,20] These differences highlight the importance of patient selection, timing of induction, and cervical favorability in determining outcomes.

Postpartum hemorrhage (PPH) was the most common maternal complication observed in this study and occurred significantly more often in women with induction failure. Similar findings were reported by Zenzmaier et al. (2017) and Zhang et al. (2022), who demonstrated increased postpartum blood loss following induction, particularly in nulliparous women.[2,19] Uterine hyperstimulation, although relatively infrequent, remains a known complication of prostaglandin and oxytocin use, as also observed by Soni et al. (2017).[12]

Regarding neonatal outcomes, fetal distress and NICU admission were significantly higher in cases of failed induction. These findings are consistent with those of Selo-ojeme et al. (2011) and Zhao et al. (2017), who reported increased fetal compromise and neonatal admissions following induced labor.[17,21] However, Apgar scores at 1 and 5 minutes were comparable across groups, and neonatal mortality was low, suggesting that with adequate monitoring, adverse outcomes can be minimized.

Several large studies, including Hedegaard et al. (2015) and Gurol et al. (2022), have demonstrated that higher induction rates at the population level may reduce stillbirth and neonatal mortality, indicating potential long-term benefits of timely induction.[3, 11] Similarly, Hong et al. (2023) reported favorable maternal outcomes with elective induction at 39 weeks, though caution was advised in nulliparous women due to increased risk of shoulder dystocia. [22]

CONCLUSION

The present study demonstrates that induction of labor is an effective obstetric intervention when appropriately indicated, but it is associated with increased maternal and neonatal morbidity in cases of failed induction. Careful patient selection, assessment of cervical status using the Modified Bishop score, and individualized induction protocols are essential to improve outcomes and reduce unnecessary operative deliveries.

Declaration by Authors

Ethical Approval: Approved
Acknowledgement: None
Source of Funding: None
Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Leveno KJ, Bloom SL, Spong CY, Dashe JS, Hoffman BL, Casey BM, Sheffield JS. Williams obstetrics. Cunningham FG, editor. New York: McGraw-Hill Medical; 2014.
2. Zhang QJ, Chen SW, Xu X, Zhang HL, Yan JY. Effect of induction of labor on maternal and perinatal outcomes in low-risk singleton pregnancies: a retrospective case-control study. Eur Rev Med Pharmacol Sci. 2022; 26(16).
3. Gurol-Urganci I, Jardine J, Carroll F, Frémeaux A, Muller P, Relph S, et al. Use of induction of labor and emergency caesarean section and perinatal outcomes in English maternity services: a national hospital-level study. BJOG. 2022;129(11): 1899-906.
4. Johnson DP, Davis NR, Brown AJ. Risk of caesarean delivery after induction at term in nulliparous women with an unfavourable cervix. Am J Obstet Gynecol. 2003; 188(6):1565-72.

5. Mozurkewich E, Chilimigras J, Koepke E, Keeton K, King VJ. Indications for induction of labor: a best-evidence review. BJOG. 2009;116(5):626-36.
6. Lawani OL, Onyebuchi AK, Iyoke CA, Okafo CN, Ajah LO. Obstetric outcome and significance of labor induction in a health resource-poor setting. Obstet Gynecol Int. 2014;2014(1):419621.
7. Dahlen HG, Thornton C, Downe S, De Jonge A, Seijmonsbergen-Schermers A, Tracy S, et al. Intrapartum interventions and outcomes for women and children following induction of labor at term in uncomplicated pregnancies: a 16-year population-based linked data study. BMJ Open. 2021; 11(6):e047040.
8. Tandu-Umba B, Tshibangu RL, Muela AM. Maternal and perinatal outcomes of induction of labor at term in the university clinics of Kinshasa, DR Congo.
9. Nair PP, Jungari ML, Tiwari MR, Butola LK. Study of induction of labor with oral misoprostol and its maternal and perinatal outcome. Int J Cur Res Rev. 2020;12(14).
10. Darney BG, Snowden JM, Cheng YW, Jacob L, Nicholson JM, Kaimal A, et al. Elective induction of labor at term compared with expectant management: maternal and neonatal outcomes. Obstet Gynecol. 2013; 122(4):761-9.
11. Hedegaard M, Lidegaard Ø, Skovlund CW, Mørch LS, Hedegaard M. Perinatal outcomes following an earlier post-term labor induction policy: a historical cohort study. BJOG. 2015;122(10):1377-85.
12. Soni K, Subudhi K, Misra B, Gouda BC, Chaudhary S. Maternal and perinatal outcome in induction of labor: A comparative study. Sch J Appl Med Sci. 2017;5(1D):273-81.
13. Asghar S, Awan A, Yasin S. Perinatal and maternal outcome associated with induction of labor. J Med Health Sci. 2010;4(4):313.
14. Abisowo OY, Oyinyechi AJ, Olusegun FA, Oyedokun OY, Motunrayo AF, Abimbola OT. Feto-maternal outcome of induced versus spontaneous labor in a Nigerian tertiary maternity unit. Trop J Obstet Gynaecol. 2017;34(1):21-7.
15. Ashwal E, Krispin E, Aviram A, Aleyraz E, Gabby-Benziv R, Wiznitzer A, et al. Perinatal outcome in women with prolonged premature rupture of membranes at term undergoing labor induction. Arch Gynecol Obstet. 2016; 294:1125-31.
16. Jeer B, Haberfeld E, Khalil A, Thangaratinam S, Allotey J. Perinatal and maternal outcomes according to timing of induction of labor: a systematic review and meta-analysis. Eur J Obstet Gynecol Reprod Biol. 2023.
17. Zhao Y, Flatley C, Kumar S. Intrapartum intervention rates and perinatal outcomes following induction of labor compared to expectant management at term from an Australian perinatal centre. Aust N Z J Obstet Gynaecol. 2017;57(1):40-8.
18. Dagli S, Fonseca M. To study the maternal and neonatal outcome in postdated women undergoing induction of labor versus spontaneous labor. J Obstet Gynaecol India. 2021; 71:131-5.
19. Zenzmaier C, Leitner H, Brezinka C, Oberaigner W, König-Bachmann M. Maternal and neonatal outcomes after induction of labor: a population-based study. Arch Gynecol Obstet. 2017; 295:1175-83.
20. Lee VR, Darney BG, Snowden JM, Main EK, Gilbert W, Chung J, et al. Term elective induction of labor and perinatal outcomes in obese women: retrospective cohort study. BJOG. 2016;123(2):271-8.
21. Selo-Ojeme D, Rogers C, Mohanty A, Zaidi N, Villar R, Shangaris P. Is induced labor in the nullipara associated with more maternal and perinatal morbidity? Arch Gynecol Obstet. 2011; 284:337-41.
22. Hong J, Atkinson J, Mitchell AR, Tong S, Walker SP, Middleton A, et al. Comparison of maternal labor-related complications and neonatal outcomes following elective induction of labor at 39 weeks of gestation vs expectant management: a systematic review and meta-analysis. JAMA Netw Open. 2023;6(5): e2313162.

How to cite this article: Priyal Macwan, Shreya Mehta, Rohit Jain. Observational study of maternal and perinatal outcomes in cases of induction of labor. *Int J Health Sci Res.* 2026; 16(2):184-192. DOI: *10.52403/ijhsr.20260222*

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