

DOI: <https://dx.doi.org/10.18203/2320-1770.ijrcog20263044>

Original Research Article

Maternal and fetal outcomes in women with first-trimester threatened abortion: a prospective observational study from a tertiary care centre in north India

Meena Devi P.*, Neha Sahu, Varsha Kumari, Anjana Agarwal

Department of Obstetrics and Gynecology, Hind Institute of Medical Sciences, Safedabad, Barabanki, Uttar Pradesh, India

Received: 12 July 2026

Accepted: 11 August 2026

*Correspondence:

Dr. Meena Devi P.,

E-mail: meenadevi846@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Threatened abortion- vaginal bleeding before 20 weeks with a closed cervix and a viable intrauterine pregnancy- complicates roughly 15-25% of pregnancies and is associated with later adverse outcomes. Prospective regional data from north India remain limited. We described maternal and fetal outcomes in such women and examined their association with demographic factors.

Methods: This prospective observational study was conducted in the department of obstetrics and gynecology at a tertiary centre in Barabanki, Uttar Pradesh, over 18 months. Women aged 18-35 years with a singleton pregnancy and first-trimester vaginal bleeding (<14 weeks) were enrolled consecutively and followed to delivery. Maternal and fetal endpoints were recorded; categorical associations were tested by chi-square ($p < 0.05$).

Results: Of 250 women, 41 (16.4%) progressed to abortion and 209 continued to delivery. Pre-eclampsia occurred in 30.4%, eclampsia in 9.6%, placenta previa in 7.6%, abruption in 4.0%, preterm premature rupture of membranes in 17.7% and preterm labour in 22.0%. The caesarean rate was 47.4%. Low birth weight occurred in 52.6%, NICU admission in 13.9% and stillbirth in 10.1%. Good maternal and fetal outcomes were recorded in 69.6% and 75.6%, respectively. Maternal outcome was associated with age ($p < 0.001$), socioeconomic status ($p = 0.005$) and locality ($p = 0.001$); fetal outcome was associated with age ($p < 0.001$), socioeconomic status ($p = 0.007$) and locality ($p = 0.001$).

Conclusions: Women with first-trimester threatened abortion carried a substantial burden of maternal and perinatal morbidity, concentrated among older, lower-socioeconomic and rural women. This group warrants intensified antenatal surveillance and early risk stratification.

Keywords: First-trimester bleeding, Low birth weight, Maternal outcome, Perinatal outcome, Pregnancy complications, Threatened abortion

INTRODUCTION

First-trimester vaginal bleeding complicates close to a quarter of clinically recognised pregnancies, and roughly half of these end in early loss.^{1,2} Threatened abortion- bleeding before 20 weeks of gestation with a closed cervix, no expulsion of products and no sonographic evidence of embryonic demise- is the most common of these presentations.³ It is a frequent reason for acute presentation

in early pregnancy and a recognised source of anxiety for both women and clinicians.

Beyond the immediate threat of miscarriage, an episode of first-trimester bleeding has been linked to complications later in the same pregnancy. Population-based and case-control studies report higher rates of spontaneous preterm birth, preterm premature rupture of membranes, placental abruption, fetal growth restriction and low birth weight

among affected women.^{4,5} A shared placental origin is plausible: defective trophoblast invasion and early decidual disruption may both provoke the initial bleed and predispose to later placental insufficiency.⁶

Most of this evidence comes from western cohorts or retrospective case-control designs. Prospective studies that follow women from the first trimester to delivery and record both maternal and fetal endpoints remain scarce in the north Indian setting, where rural residence, lower socioeconomic status and uneven access to antenatal care may modify outcomes. The demographic determinants of outcome within this specific group are rarely quantified locally.

We therefore conducted a prospective observational study to describe maternal and fetal outcomes among women presenting with first-trimester threatened abortion at a tertiary care centre in Uttar Pradesh, and to examine the association of these outcomes with maternal age, socioeconomic status and locality.

METHODS

Study design and setting

This was a prospective, observational descriptive study conducted in the department of obstetrics and gynecology, Hind Institute of Medical Sciences, Safedabad, Barabanki, Uttar Pradesh (affiliated to Atal Bihari Vajpayee Medical University, Lucknow), over 18 months from the date of ethics approval.

Participants

Consecutive women attending the outpatient department or admitted with first-trimester vaginal bleeding who met the eligibility criteria were enrolled. Inclusion criteria were pregnant women aged 18-35 years; vaginal bleeding in the first trimester (<14 weeks of gestation); singleton pregnancy; and written informed consent. Exclusion criteria were bad obstetric history; chronic medical illness (diabetes mellitus, hypertension, chronic kidney disease or malignancy); previous infertility treatment; complete, incomplete or missed abortion, hydatidiform mole or ectopic pregnancy; women opting for medical termination; women on treatment for any thrombophilic disorder; congenital uterine anomaly or a leiomyoma distorting the uterine cavity; and other local causes of bleeding such as cervical polyp, erosion or carcinoma.

Sample size

Sample size was estimated using the formula $n = Z^2 \cdot p(1-p)/E^2$, where $Z = 1.96$ for a 95% confidence level, $p = 0.20$ (the expected proportion of pregnancies presenting with first-trimester bleeding/threatened abortion, consistent with published estimates of 15-25%) and $E = 0.05$ (absolute precision).^{1,2} This yielded $n = 246$, rounded to 250.

Variables and definitions

Threatened abortion was defined per ACOG criteria as vaginal bleeding and/or mild cramping before 20 weeks with a closed cervix and a continuing pregnancy. Pre-eclampsia (new-onset blood pressure $\geq 140/90$ mmHg with proteinuria after 20 weeks), eclampsia, placental abruption and placenta previa were defined per Williams Obstetrics and ACOG. Preterm premature rupture of membranes was rupture before 37 weeks; preterm birth was delivery before 37 completed weeks; low birth weight was a birth weight below 2500 gm; postpartum haemorrhage was blood loss exceeding 500 ml after vaginal delivery or 1000 ml after caesarean; and stillbirth was a non-viable delivery at or after 20 weeks. Socioeconomic status was graded using the modified BG Prasad scale.⁷ Maternal and fetal outcomes were each dichotomised as good or poor on the basis of the recorded antepartum, intrapartum, postpartum and perinatal events.

Data collection

Data were recorded on a pre-designed five-part proforma capturing demographic details, obstetric history, period of gestation, amount and duration of bleeding, serial ultrasonographic findings, antepartum complications across follow-up visits, intrapartum and postpartum events, and fetal outcomes. Each woman was followed from her first first-trimester visit until delivery. Women who opted for medical termination during follow-up were excluded from analysis.

Statistical analysis

Data were entered in Microsoft Excel and analysed with IBM SPSS version 25. Qualitative variables were summarised as frequencies and percentages and quantitative variables as mean $\pm$ standard deviation. Associations between demographic factors and dichotomised maternal or fetal outcome were tested using the chi-square test, with $p < 0.05$ considered significant.

Ethics

The study was approved by the Institutional Ethics Committee of Hind Institute of Medical Sciences, Barabanki (Ref. No. UID#HIMS/IHEC /17-2025, dated 20/6/25). Written informed consent (in English or Hindi) was obtained from every participant before enrolment.

RESULTS

Of the 250 women enrolled with first-trimester threatened abortion, 41 (16.4%) progressed to abortion and 209 continued to delivery; antepartum complication denominators are noted in each table. The overall maternal and perinatal event profile is summarised in Figure 1.

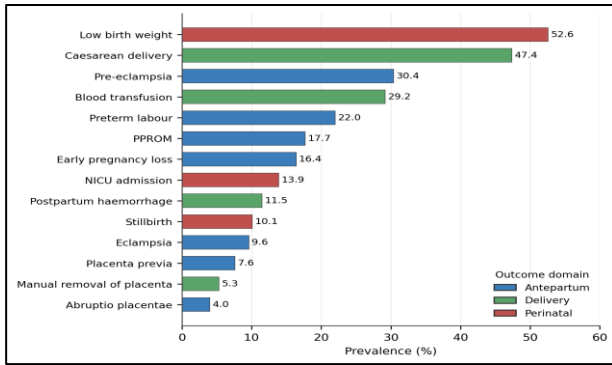


Figure 1: Prevalence of maternal and perinatal outcomes in the cohort, ranked and colour-coded by domain (antepartum, delivery, perinatal).

Rates are as recorded; denominators are 250 for antepartum events and 209 for delivery and perinatal events. PPRM, preterm premature rupture of membranes; NICU, neonatal intensive care unit.

Socio demographic profile

The largest age group was 26-30 years (43.6%), followed by 18-25 years (35.2%); only 21.2% were aged 31-35 years. Nearly a third (31.6%) belonged to the lowest socioeconomic class, and 71.2% were from rural areas. Most women were homemakers (36.4%) or unskilled workers (26.8%), and 60.8% were multigravidae (Table 1).

Antepartum complications

Abortion occurred in 16.4% of the cohort. Placenta previa (7.6%) was the commonest cause of antepartum hemorrhage, ahead of abruption (4.0%). Pre-eclampsia developed in 30.4% and eclampsia in 9.6%. Preterm premature rupture of membranes occurred in 17.7% and preterm labour in 22.0% of continuing pregnancies (Table 2).

Table 1: Socio demographic profile of participants (n=250).

Variables	Categories	N	%
Age (years)	18-25	88	35.2
	26-30	109	43.6
	31-35	53	21.2
Socioeconomic class	Class I	19	7.6
	Class II	31	12.4
	Class III	54	21.6
	Class IV	67	26.8
	Class V	79	31.6
Locality	Rural	178	71.2
	Urban	72	28.8
Occupation	Professional	12	4.8
	Skilled	34	13.6
	Semi-skilled	46	18.4
	Unskilled	67	26.8
	Homemaker	91	36.4
Parity	Primigravida	98	39.2
	Multigravida	152	60.8

Socioeconomic status graded by modified BG Prasad scale.

Table 2: Antepartum complications.

Complications	N	%	Denominator
Abortion (early pregnancy loss)	41	16.4	250
Abruptio placentae	10	4.0	250
Placenta previa	19	7.6	250
Pre-eclampsia	76	30.4	250
Eclampsia	24	9.6	250
Preterm premature rupture of membranes	37	17.7	209
Preterm labour	46	22.0	209

Denominators as recorded in the source dataset; see Discussion regarding the mixed denominators for pre-eclampsia/eclampsia (n=250) versus PPRM/preterm labour (n=209).

Table 3: Intrapartum and postpartum events (n=209).

Variable	Categories	N	%
Gestation at delivery	Preterm	67	32.1
	Term	98	46.9
	Post-term	44	21.1
Type of labour	Spontaneous	119	56.9
	Induced	90	43.1
Mode of delivery	Normal vaginal	80	38.3
	Instrumental	30	14.4
	Cesarean	99	47.4
Manual removal of placenta	Present	11	5.3
Postpartum haemorrhage	Present	24	11.5
Blood transfusion	Present	61	29.2

Table 4: Fetal and perinatal outcomes (n=209).

Variables	Categories	N	%
Birth weight	<2.5 kg	110	52.6
	≥2.5 kg	99	47.4
Birth status	Live birth	188	89.9
	Stillbirth	21	10.1
Apgar score (5 minutes)	<3	30	14.4
	4-6	77	36.8
	7-10	102	48.8
NICU admission	Present	29	13.9
Overall fetal outcome	Good	158	75.6
	Poor	51	24.4

Table 5: Association of demographic factors with maternal outcome (n=250).

Factors	Categories	Good N (%)	Poor N (%)	P value
Age (years)	18-25	78 (88.6)	10 (11.4)	<0.001
	26-30	88 (80.7)	21 (19.3)	
	31-35	8 (15.1)	45 (84.9)	
Socioeconomic class	I	15 (78.9)	4 (21.1)	0.005
	II	25 (80.6)	6 (19.4)	
	III	44 (81.5)	10 (18.5)	
	IV	47 (70.1)	20 (29.9)	
	V	43 (54.4)	36 (45.6)	
Locality	Rural	112 (62.9)	66 (37.1)	0.001
	Urban	62 (86.1)	10 (13.9)	

Chi-square test.

Delivery and postpartum events

Among the 209 women reaching delivery, 46.9% delivered at term, 32.1% preterm and 21.1% post-term. Labour was spontaneous in 56.9% and induced in 43.1%. Cesarean section was the commonest mode of delivery (47.4%), followed by normal vaginal (38.3%) and instrumental delivery (14.4%). Manual removal of the placenta was required in 5.3%, postpartum haemorrhage occurred in 11.5% and blood transfusion in 29.2% (Table

3). Overall, a good maternal outcome was recorded in 69.6% of the cohort and a poor outcome in 30.4%.

Fetal and perinatal outcomes

Low birth weight was recorded in 52.6% of neonates. Live birth occurred in 89.9% and stillbirth in 10.1%. An Apgar score of 7-10 at five minutes was seen in 48.8%, 4-6 in 36.8% and below 3 in 14.4%. NICU admission was required in 13.9%. A good fetal outcome was recorded in 75.6% and a poor outcome in 24.4% (Table 4).

Table 6: Association of demographic factors with fetal outcome.

Factors	Categories	Good N (%)	Poor N (%)	P value
Age (years)	18-25	79 (89.8)	9 (10.2)	<0.001
	26-30	99 (90.8)	10 (9.2)	
	31-35	21 (39.6)	32 (60.4)	
Socioeconomic class	I	16 (84.2)	3 (15.8)	0.007
	II	26 (83.9)	5 (16.1)	
	III	48 (88.9)	6 (11.1)	
	IV	57 (85.1)	10 (14.9)	
	V	52 (65.8)	27 (34.2)	
Locality	Rural	132 (74.2)	46 (25.8)	0.001
	Urban	67 (93.1)	5 (6.9)	

Chi-square test. The cross-tabulated denominators in this table reflect the full enrolled cohort (n=250) as recorded in the source dataset, whereas the overall fetal-outcome distribution (Table 4) is reported for the 209 pregnancies reaching delivery.

Association of demographic factors with maternal outcome

A good maternal outcome was strongly age-dependent: it was recorded in 88.6% of women aged 18-25 years and 80.7% of those aged 26-30 years, but in only 15.1% of women aged 31-35 years ($p<0.001$). Outcome also improved with higher socioeconomic class (78.9% in class I versus 54.4% in class V; $p=0.005$) and was better among urban than rural women (86.1% versus 62.9%; $p=0.001$) (Table 5).

Association of demographic factors with fetal outcome. A good fetal outcome was likewise associated with younger maternal age (89.8% at 18-25 years and 90.8% at 26-30 years versus 39.6% at 31-35 years; $p<0.001$), higher socioeconomic class (84.2% in class I versus 65.8% in class V; $p=0.007$) and urban residence (93.1% versus 74.2% rural; $p=0.001$) (Table 6).

DISCUSSION

Among women followed from a first-trimester bleed to delivery, one in six miscarried, and those who continued carried a heavy load of obstetric and perinatal morbidity. Good maternal and fetal outcomes were recorded in roughly 70% and 76%, respectively. Adverse outcomes were not evenly distributed: they clustered in older women, in those of lower socioeconomic class and in rural residents.

The 16.4% progression to abortion is close to the 16.9% reported by Ahmed et al. in a comparable cohort, though well below the 44% described by Sivasane and Daver, whose population was admitted and more heavily symptomatic.^{10,11} Our cesarean rate (47.4%) and preterm labour rate (22.0%) echo the elevated operative-delivery and preterm figures reported by Narayanan et al and by Weiss et al. in larger series.^{4,12} Pre-eclampsia in 30.4% is higher than in several Western cohorts; this likely reflects a tertiary referral population enriched for hypertensive

disease, as well as the shared placental pathway between early bleeding and later hypertensive disorders described by Gunarathna et al.¹⁹ Preterm premature rupture of membranes (17.7%) exceeded the 6.7% reported by Ahmed et al again consistent with referral-level case mix.¹⁰ The pattern of findings broadly matches the IJRCOG series of Sarmalkar et al and the south Indian data of Mammen, both of which linked first-trimester threatened abortion to spontaneous loss and adverse perinatal outcome.^{15,16}

A common placental mechanism plausibly underlies these associations. Early decidual bleeding, subchorionic haematoma and defective trophoblast invasion can disturb placentation, predisposing to abruption, growth restriction, preterm labour and hypertensive disease later in gestation.^{6,30} The inflammatory milieu provoked by intrauterine bleeding may further lower the threshold for membrane rupture and uterine contractility.²¹

The demographic gradients have practical value. Older, poorer and rural women had markedly worse maternal and fetal outcomes, a pattern that mirrors the socioeconomic inequalities in pregnancy outcome documented across India by Joyce et al. and the rural excess of pregnancy loss reported by Yadav et al.^{25,26} Clinically, first-trimester bleeding in these subgroups should trigger early risk stratification, intensified antenatal surveillance with serial growth assessment, and a low threshold for referral.

The strengths of this study are its prospective design, with each woman followed from the first trimester to delivery, and the breadth of recorded endpoints spanning early loss, hypertensive disease, antepartum haemorrhage, mode of delivery and a full perinatal profile. It adds prospective regional data from north India, where such cohorts are uncommon. Several limitations temper interpretation. The study was single-centre and had no concurrent control group of women without threatened abortion, so the observed rates describe this group but cannot, on their own, establish that threatened abortion caused the excess

morbidity. Potential confounders- nutrition, lifestyle, environmental exposures and pre-existing disease- were not adjusted through multivariable analysis. The tertiary referral setting may have selected more severe cases. A denominator inconsistency in the fetal-outcome cross-tabulations (Table 6, n=250) relative to the overall fetal-outcome distribution (Table 4, n=209) was identified in the source data and requires verification against the primary records. The psychological impact of first-trimester bleeding was not assessed.

CONCLUSION

In women with first-trimester threatened abortion, both maternal and fetal outcomes were adverse in a substantial minority, and risk was concentrated in older, lower-socioeconomic and rural women. These women merit early identification and closer antenatal monitoring. Multicentre prospective studies with concurrent controls and multivariable adjustment are needed to confirm the independent contribution of threatened abortion to these outcomes and to test whether intensified surveillance improves them.

ACKNOWLEDGEMENTS

The authors thank the staff and participants of the department of obstetrics and gynecology, Hind Institute of Medical Sciences, Barabanki.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee Hind Institute of Medical Sciences, Barabanki [Ref. No. UID#HIMS/IHEC /17-2025, dated 20/6/25]

REFERENCES

- Snell BJ. Assessment and management of bleeding in the first trimester of pregnancy. J Midwifery Womens Health. 2009;54(6):483-91.
- Hasan R, Baird DD, Herring AH, Olshan AF, Jonsson Funk ML, Hartmann KE. Association between first-trimester vaginal bleeding and miscarriage. Obstet Gynecol. 2009;114(4):860-7.
- Mouri M, Hall H, Rupp TJ. Threatened miscarriage. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2025.
- Weiss JL, Malone FD, Vidaver J, Ball RH, Nyberg DA, Comstock CH, et al. Threatened abortion: a risk factor for poor pregnancy outcome, a population-based screening study. Am J Obstet Gynecol. 2004;190(3):745-50.
- Dadkhah F, Kashanian M, Eliasi G. A comparison between the pregnancy outcome in women both with or without threatened abortion. Early Hum Dev. 2010;86(3):193-6.
- Amirkhani Z, Akhlaghdoust M, Abedian M, Salehi GR, Zarbati N, Mogharehahed M, et al. Maternal and perinatal outcomes in pregnant women with first trimester vaginal bleeding. J Fam Reprod Health. 2013;7(2):57-61.
- Mathiyalagen P, Davis P, Sarasveni M. Updated BG Prasad socio-economic classification: the 2020 update. Indian J Pediatr. 2021;88(1):76-7.
- Hendriks E, MacNaughton H, MacKenzie MC. First trimester bleeding: evaluation and management. Am Fam Phys. 2019;99(3):166-74.
- Sotiriadis A, Papatheodorou S, Makrydimas G. Threatened miscarriage: evaluation and management. BMJ. 2004;329(7458):152-5.
- Ahmed SR, El-Sammani MEK, Al-Sheeha MAA, Aitallah AS, Jabin Khan F, Ahmed SR. Pregnancy outcome in women with threatened miscarriage: a year study. Mater Sociomed. 2012;24(1):26-8.
- Sivasane DS, Daver RG. Study of pregnancy outcome of threatened abortion and its correlation with risk factors in a tertiary care hospital of Mumbai, India. Int J Reprod Contracept Obstet Gynecol. 2018;7(11):4598-603.
- Narayanan S, Rajan AP, Kalliyil FJ, Nair LR, Tajunnisa TM, Sheeja HS. Does threatened miscarriage have an influence on maternal and fetal outcomes during pregnancy? Indian J Obstet Gynecol Res. 2024;11(3):345-50.
- Kanmaz AG, İnan AH, Beyan E, Budak A. The effects of threatened abortions on pregnancy outcomes. Ginekol Pol. 2019;90(4):195-200.
- Ahmed AE, Khalifa AE, Fares T. Effect of threatened abortion on fetal growth and premature rupture of membranes. Al-Azhar Med J. 2022;51(2):861-70.
- Sarmalkar MS, Singh S, Nayak AH. Maternal and perinatal outcome in women with threatened abortion in first trimester. Int J Reprod Contracept Obstet Gynecol. 2016;5(5):1438-45.
- Mammen KE. Fetomaternal outcome in patients with threatened abortion in a tertiary care center in South Kerala. Asian J Pharm Clin Res. 2023;16(8):72-5.
- Mulik V, Bethel J, Bhal K. A retrospective population-based study of primigravid women on the potential effect of threatened miscarriage on obstetric outcome. J Obstet Gynaecol. 2004;24(3):249-53.
- Obed JY, Adewole IF. Antepartum haemorrhage: the influence of first trimester uterine bleeding. West Afr J Med. 1997;16(1):24-6.
- Gunarathna S, Rathnayake N, Pallemulla L, Rasanjana D, Nishad N. The association between threatened miscarriage and development of gestational hypertension/pre-eclampsia. Sri Lanka J Obstet Gynaecol. 2021;43:138.
- Okawa S, Hosokawa Y, Nanishi K, Zaitzu M, Tabuchi T. Threatened abortion, threatened premature labor, and preterm birth during the first state of emergency for COVID-19 in 2020 in Japan. J Obstet Gynaecol Res. 2022;48(5):1116-25.
- Petriglia G, Palaia I, Musella A, Marchetti C, Antonilli M, Brunelli R, et al. Threatened abortion and late-pregnancy complications: a case-control study

- and review of literature. *Minerva Ginecol.* 2015;67(6):491-7.
22. Abd El-Raheem AEA, Mohamed A, Elboghdady A. Obstetric outcomes in women with threatened abortion. *Al-Azhar Int Med J.* 2022;3(4):113-7.
 23. Demir SC, Polat İ, Şahin D, Gedikbaşı A, Çetin C, Timur H, et al. PERİDER-TJOD joint review on threatened abortion and guideline for its treatment. *Turk J Obstet Gynecol.* 2025;22(1):96-105.
 24. Norsker FN, Espenhain L, á Rogvi S, Morgen CS, Andersen PK, Nybo Andersen AM. Socioeconomic position and the risk of spontaneous abortion: a study within the Danish National Birth Cohort. *BMJ Open.* 2012;2(3):e001077.
 25. Joyce CM, Sharma D, Mukherji A, Nandi A. Socioeconomic inequalities in adverse pregnancy outcomes in India: 2004-2019. *PLOS Glob Public Health.* 2024;4(9):e0003701.
 26. Yadav P, Meena GS, Kumar R, Shar-a N. A cross-sectional epidemiological study of abortions in a rural area of Delhi. *Indian J Community Med.* 2025;50(1):147-53.
 27. Arambepola C, Rajapaksa LC, Attygalle D, Moonasinghe L. Relationship of family formation characteristics with unsafe abortion: is it confounded by women's socio-economic status? A case-control study from Sri Lanka. *Reprod Health.* 2016;13(1):75.
 28. Ahmadi R, Ziaei S, Parsay S. Association between nutritional status with spontaneous abortion. *Int J Fertil Steril.* 2017;10(4):337-42.
 29. Falco P, Milano V, Pilu G, David C, Grisolia G, Rizzo N, et al. Sonography of pregnancies with first-trimester bleeding and a viable embryo: a study of prognostic indicators by logistic regression analysis. *Ultrasound Obstet Gynecol.* 1996;7(3):165-9.
 30. Şükür YE, Göç G, Köse O, Açmaz G, Özmen B, Atabekoğlu CS, et al. The effects of subchorionic hematoma on pregnancy outcome in patients with threatened abortion. *J Turk Ger Gynecol Assoc.* 2014;15(4):239-42.
 31. Coomarasamy A, Williams H, Truchanowicz E, Seed PT, Small R, Quenby S, et al. PROMISE: first-trimester progesterone therapy in women with a history of unexplained recurrent miscarriages. *NIHR Journals Library*; 2016.
 32. Wahabi HA, Fayed AA, Esmaeil SA, Bahkali KH. Progesterone for treating threatened miscarriage. *Cochrane Database Syst Rev.* 2018;8:CD005943.
 33. Matar M, Yared G, Massaad C, Ghazal K. Vaginal bleeding during pregnancy: a retrospective cohort study assessing maternal and perinatal outcomes. *J Int Med Res.* 2025;53(2):03000605251315349.
 34. Akpan UB, Akpanika CJ, Asibong U, Arogundade K, Nwagbata AE, Etuk S. The influence of threatened miscarriage on pregnancy outcomes: a retrospective cohort study in a Nigerian tertiary hospital. *Cureus.* 2022;14(11):e31734.

Cite this article as: Devi MP, Sahu N, Kumari V, Agarwal A. Maternal and fetal outcomes in women with first-trimester threatened abortion: a prospective observational study from a tertiary care centre in north India. *Int J Reprod Contracept Obstet Gynecol* 2026;15:3577-83.