

The impact of intrapartum and immediate post-partum complications and newborn care practices on breastfeeding initiation in Ethiopia: A prospective cohort study

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Abstract

This study aimed to investigate the impact of intrapartum and post-partum complications and newborn care practices on early initiation of breastfeeding (EIBF). Data for the study came from a prospective cohort study in Ethiopia that recruited and followed pregnant and post-partum women from 2019 to 2021. Resident enumerators conducted interviews at enrolment in 2019 and follow-ups at 6 weeks, 6 months and 1 year post-partum. The present analysis is based on data from the baseline survey and 6 weeks follow-up. Multivariable logistic regression was used to estimate the effects of newborn care practices and intrapartum and post-partum complications on EIBF (the proportion of newborns who initiated breastfeeding within the first hour of birth). Overall, 2660 mother–infant pairs were included in this analysis. After adjustment, EIBF was less likely among women who experienced intrapartum haemorrhage (adjusted odds ratio [AOR]: 0.76, 95% confidence interval [CI]: 0.59–0.97), malpresentation (AOR: 0.46, 95% CI: 0.30–0.72) and convulsions (AOR: 0.48, 95% CI: 0.34–0.66) during childbirth. Mother–newborn skin-to-skin contact increased the likelihood of EIBF (AOR: 1.47, 95% CI: 1.11–1.94). Women who experienced post-partum haemorrhage (AOR: 0.63, 95% CI: 0.47–0.84), retained placenta for more than 30 min (AOR: 0.36, 95% CI: 0.24–0.52) and convulsions after delivery (AOR: 0.57, 95% CI: 0.41–0.79) were less likely to initiate breastfeeding early. Also, women who had a caesarean birth (AOR: 0.28, 95% CI: 0.18–0.41), delivered outside of a healthcare facility (AOR: 0.70, 95% CI: 0.50–0.99) or had twin birth (AOR: 0.43, 95% CI: 0.22–0.85) were less likely to initiate breastfeeding early. Skin-to-skin contact should be encouraged whenever possible, and women with obstetric complications should be encouraged and supported to initiate breastfeeding early.

KEYWORDS

breastfeeding initiation, breastfeeding promotion, infant feeding, mother support groups, pregnancy, prospective study

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1 | BACKGROUND

Immediate newborn care that includes early initiation of breastfeeding (EIBF) is essential for the health and survival of newborns. Globally, it has been shown that breastfeeding has prodigious benefits for both mothers and newborns. It supports the child's growth, protects the child against infections and the mother from post-partum haemorrhage and breast and ovarian cancers (Ekholuenetale et al., 2021; Mallick et al., 2021; Rollins et al., 2016; Victora et al., 2016). It is estimated that breastfeeding can save up to a million deaths in children under age five each year (Victora et al., 2016). For example, a meta-analysis in 2013 found a 44% lower risk of all-cause neonatal mortality and a 45% lower risk of infection-related neonatal mortality among children who initiated breastfeeding early (Debes et al., 2013). In a national prospective cohort study in the United States, early breastfeeding initiation was associated with a 26% lower risk of infant mortality (Li et al., 2022). Because of its immense benefits to infants and young children, the World Health Organization (WHO) recommends the initiation of breastfeeding within the first hour of birth (Unicef, 2018). However, despite the evidence and guidelines highlighting the importance of EIBF, the prevalence is suboptimal around the world (UNICEF & WHO, 2019). Data from the global breastfeeding scorecard for 2019 revealed that only 43% of newborns were breastfed within 1 h of birth, falling short of the 70% global target set for 2030 (UNICEF & WHO, 2019). In Africa, EIBF varies substantially from 24% in Chad to 86% in Burundi (Teshale & Tesema, 2021). In Ethiopia, the prevalence of EIBF is 51.9% (Getnet et al., 2020).

Several factors can influence the timing of breastfeeding initiation. However, many previous studies that investigated the factors influencing breastfeeding initiation in Ethiopia and elsewhere in Africa focused on distal factors such as maternal socioeconomic, demographic, behavioural and culture-related factors (Appiah et al., 2021; Habtewold et al., 2019; Nkoka et al., 2019; Teshale & Tesema, 2021; Woldeamanuel, 2020) while neglecting proximal factors such as childbirth and post-partum complications and perinatal factors that have a direct impact on breastfeeding initiation. Intrapartum and post-partum complications, for example, increase a woman's need for medical attention during and after childbirth, respectively, and can prevent her from bonding with and breastfeeding her newborn in the first hour. It has been shown that women with no obstetric complications are 57% more likely to initiate breastfeeding early than those with obstetric complications (Gurung et al., 2021). Also, studies have shown that prolonged labour, the use of opioid pain medication in labour, anaesthesia, assisted vaginal birth and caesarean section are associated with delayed breastfeeding initiation (Chapman & Pérez-Escamilla, 1999; Dewey et al., 2003; Fan et al., 2020; Smith, 2007; Wiklund et al., 2009). In a Swedish study of 585 women, prolonged labour was linked to a nearly threefold increased risk of delayed breastfeeding initiation than nonprolonged labour (Wiklund et al., 2009).

Key messages

- Malpresentation, intrapartum haemorrhage, and convulsions during childbirth were associated with a lower likelihood of breastfeeding initiation within the first hour of birth.
- Retained placenta for more than 30 min, post-partum haemorrhage, and convulsions after childbirth were associated with a lower likelihood of breastfeeding initiation within the first hour of birth.
- Out-of-facility delivery, multiple births and caesarean delivery were associated with a lower likelihood of breastfeeding initiation within the first hour of birth.
- Women who practised skin-to-skin contact after birth were more likely to initiate breastfeeding within the first hour of birth than those who did not practise skin-to-skin contact.

Furthermore, health care practices during labour, birth and the immediate post-partum can adversely affect breastfeeding initiation (Smith, 2007). In some hospitals, it is standard practise for babies to be separated from their mothers after birth for routine procedures (Er Moore Bergman et al., 2016; Kruse et al., 2005). However, studies have shown that mother–newborn skin-to-skin contact after birth (a practice where the baby is placed naked on the mother's bare chest at birth or soon afterwards covered in a warm blanket) can accelerate spontaneous breastfeeding and promote timely breastfeeding initiation (Mallick et al., 2021; Safari et al., 2018; Singh et al., 2017). During skin-to-skin contact, the movement of the infant's hands over the mother's breasts increases oxytocin secretion and breast milk production (Jonas et al., 2007). The prevalence of skin-to-skin contact within the first hour after birth in Ethiopia was 28.1% in a study done in 2019 (Bedaso et al., 2019).

Only a few studies in Africa have examined the influence of intrapartum and post-partum complications on breastfeeding initiation. However, given the diversity of healthcare systems worldwide, it is critical to determine country-specific factors associated with breastfeeding initiation for developing national policies and practice guidelines on breastfeeding. The current study investigated the impact of intrapartum and post-partum complications and newborn care practices on EIBF (the proportion of newborns who initiated breastfeeding within the first hour of birth) in Ethiopia.

2 | METHODS

2.1 | Data source

Data for the study were drawn from the Performance Monitoring for Action Ethiopia (PMAET) Panel Cohort 1 survey (Addis Ababa University School of Public Health and The Bill & Melinda Gates

Institute for Population and Reproductive Health at The Johns Hopkins Bloomberg School of Public Health, 2019, 2020). PMAET Panel Cohort 1 was a prospective cohort study that followed three groups of women from 2019 to 2021: (1) pregnant women, (2) women 0–4 weeks post-partum and (3) women 5–9 weeks post-partum. It was conducted in six regions of Ethiopia to measure critical reproductive, maternal and newborn health indicators (Addis Ababa University School of Public Health and The Bill & Melinda Gates Institute for Population and Reproductive Health at The Johns Hopkins Bloomberg School of Public Health, 2019). A multistage cluster sampling design was used to select 206 enumeration areas from the six regions. A census was conducted to identify all households with pregnant women or recently post-partum women (0–9 weeks) in the enumeration areas. The census screened 32,791 women in 32,614 households and 2857 eligible women (99.3% response rate) aged 15–49 were enrolled in the panel survey. A total of 2669 women (93.4%) completed the 6-week follow-up survey. The selected sample consisted of 2240 pregnant women and 617 post-partum women. Resident enumerators conducted interviews at enrolment in 2019 and follow-ups at 6 weeks, 6 months and 1 year post-partum (Addis Ababa University School of Public Health and The Bill & Melinda Gates Institute for Population and Reproductive Health at The Johns Hopkins Bloomberg School of Public Health, 2019). Women who were 5–9 weeks post-partum at enrolment were eligible for the baseline survey and 6 weeks follow-up at the same time. The present analysis pooled data from the baseline survey and 6 weeks follow-up on women with information on breastfeeding initiation. The School of Public Health of Addis Ababa University and the Johns Hopkins Bloomberg School of Public Health conducted the baseline survey and follow-up studies. A detailed description of the survey's methods, including information about survey design, sampling and data collection, is published elsewhere (Addis Ababa University School of Public Health and The Bill & Melinda Gates Institute for Population and Reproductive Health at The Johns Hopkins Bloomberg School of Public Health, 2019, 2020).

2.2 | Outcome and exposure variables

The outcome of this study was EIBF, defined as the initiation of breastfeeding within the first hour after birth. Women were asked 'How long after birth did you first put {child_name} to the breast?' to determine when breastfeeding was initiated. Responses to the question were recorded in 'minutes', 'hours', 'days', 'not yet', 'do not know' and 'no response'. In this analysis, the responses were grouped into 'initiation within one hour' and 'initiation after one hour'. We excluded infants whose mothers responded, 'not yet', 'do not know' and 'no response'. The main exposures of the study were the experience of intrapartum and immediate post-partum complications and newborn care practices. Intrapartum complications included problems during labour and delivery such as intrapartum haemorrhage, leaking or ruptured membrane, malpresentation (a foetal part other than the head of the foetus engaging the maternal

pelvis; Pilliod & Caughey, 2017), prolonged labour and convulsions. Immediate post-partum complications were defined as complications that occurred within the first 24 h after delivery. Retained placenta, fever with foul discharge or abdominal pain, post-partum haemorrhage and convulsion after birth were the post-partum complications considered in the analysis. In addition, we explored mother–newborn skin-to-skin contact after birth, the timing of the baby's first bath, wrapping of the baby after birth, caesarean delivery, place of birth and multiple births for any association with breastfeeding initiation. For skin-to-skin contact after birth, mothers were asked, 'Did someone place the baby naked on your chest against your skin immediately after delivery of the baby?' and responses were coded 'Yes' or 'No'.

2.3 | Data analysis

Data from the baseline survey and 6-week follow-up were standardized and pooled into a single data set for analysis. We calculated the prevalence of breastfeeding initiation within the first hour of birth and summarised the characteristics of the study's sample by breastfeeding initiation. Multivariable binary logistic regression was used to estimate the effect of the exposures on breastfeeding initiation with the corresponding 95% confidence intervals (CIs) and *p* values. Statistical significance was set at $p < 0.05$. Several potential confounders were controlled in the multivariable model, including maternal age, marital status, place of residence, wealth status, maternal education, parity, multiple births, place of birth, baby's gender and mother's desire for the pregnancy (wantedness of pregnancy). All analyses accounted for the unequal sampling in certain areas, the stratification of rural and urban areas and the effect of clustering in the design. Stata 17 was used for statistical analysis.

3 | RESULTS

Overall, 2660 mother–infant pairs were included in this study. Table 1 summarises the characteristics of the study sample. Over half of the women were between the ages of 20 and 30, and almost all (94.8%) were married. The sample was predominantly rural, with 40.8% of respondents having never attended school. Approximately 45.8% of the women lived in high-income households, and 41.1% had one or no living children. At baseline, most women indicated that they wanted the pregnancy then, and about 54.3% delivered in a health care facility. Nearly all (98.4%) of the babies delivered were singletons, with slightly more than half (51.8%) being boys. There was a high prevalence of breastfeeding initiation within the first hour after birth among women with a higher level of education, those who were not married, urban dwellers, women who did not want pregnancy at the time and mothers who delivered single babies (Table 1 and Supporting Information: Table S1).

TABLE 1 Characteristics of the study sample

	Overall sample		Breastfeeding initiation	
	Number ^a	Percent ^b	Number breastfed within 1 h ^a	% breastfed within 1 h ^b
Age of mother				
<20	265	10.6	158	66.8
20–30	1691	62.9	1020	67.7
31–48	704	26.6	427	65.0
Educational level of the mother				
Never attended	1063	40.8	618	67.5
Primary	970	38.7	600	66.1
Secondary	472	16.2	286	66.1
Higher	155	4.3	101	70.3
Marital status				
Married	2500	94.8	1494	66.5
Not married	158	5.2	111	73.3
Place of residence				
Urban	1001	22.2	662	70.2
Rural	1659	77.8	943	65.8
Household wealth				
Low income	928	35.9	553	66.4
Middle income	444	18.3	244	65.0
High income	1288	45.8	808	67.9
Parity				
<2	1102	41.1	668	65.5
2–3	777	28.0	477	69.0
4+	778	31.0	458	66.7
Pregnancy desired				
Then	628	68.9	376	67.2
Later or not at all	228	31.1	148	71.6
Place of childbirth				
Not in a health care facility	981	45.7	560	62.8
Health care facility	1571	54.3	1,045	70.3
Multiple births				
Single	2604	98.4	1588	67.2
Twin	47	1.6	17	46.9
Child's sex				
Boy	1279	51.8	809	66.7
Girl	1236	48.2	796	67.0

^aUnweighted number.^bWeighted percentage.

3.1 | Intrapartum complications and breastfeeding initiation

The impact of intrapartum complications on breastfeeding initiation is presented in Table 2. After adjusting for relevant confounders, there was evidence that women who experienced convulsions during delivery were less likely to initiate breastfeeding within the first hour after birth than those who did not experience convulsions (adjusted odds ratio [AOR]: 0.48, 95% CI: 0.34–0.66). Compared with women who did not experience malpresentation, those who experienced malpresentation at delivery had a 54% reduction in the odds of initiating breastfeeding within the first hour of birth (AOR: 0.46, 95% CI: 0.30–0.72). Women who suffered intrapartum haemorrhage had a 24% reduction in the odds of initiating breastfeeding within the first hour of birth than those who did not suffer intrapartum haemorrhage (AOR: 0.76, 95% CI: 0.59–0.97). In general, the odds of breastfeeding initiation within the first hour after birth was lower in women who experienced any

delivery complication than in those without complications (AOR: 0.68, 95% CI: 0.53–0.87).

3.2 | Experience of immediate post-partum complications and breastfeeding initiation

The association of immediate post-partum complications with breastfeeding initiation is shown in Table 3. Women with a retained placenta for more than 30 min after delivery were 64% less likely than those with no retained placenta to initiate breastfeeding in the first hour after birth (AOR: 0.36, 95% CI: 0.24–0.52). Women with severe post-partum haemorrhage were 37% less likely to initiate breastfeeding in the first hour after birth than those with no post-partum haemorrhage (AOR: 0.63, 95% CI: 0.47–0.84). In the immediate post-partum period, the odds of breastfeeding in the first hour of birth were lower (AOR: 0.57, 95% CI: 0.41–0.79) in women with convulsions than in those with no

TABLE 2 Association between childbirth complications and breastfeeding initiation

	Number breastfed within 1 h ^a	% breastfed within 1 h ^b	Unadjusted odds ratio (95% CI)	p Value	Adjusted odds ratio (95% CI) ^c	p Value
Intrapartum haemorrhage						
Yes	270	62.2	0.77 (0.60–0.99)	0.04	0.76 (0.59–0.97)	0.03
No	1339	68.1	1.00		1.00	
Leaking/rupture membrane and no labour pain for >24 h						
Yes	75	61.1	0.76 (0.51–1.16)	0.2	0.69 (0.46–1.05)	0.09
No	1535	67.3	1.00		1.00	
Leaking/rupture membrane before 9mos						
Yes	38	69.9	1.15 (0.58–2.29)	0.69	1.08 (0.54–2.15)	0.84
No	1573	66.9	1.00		1.00	
Malpresentation or malposition						
Yes	53	51.5	0.51 (0.33–0.78)	0.002	0.46 (0.30–0.72)	0.001
No	1549	67.6	1.00		1.00	
Prolonged labour (>12 h)						
Yes	247	63.8	0.85 (0.62–1.15)	0.29	0.75 (0.55–1.03)	0.07
No	1363	67.5	1.00		1.00	
Convulsions/fits						
Yes	148	51.4	0.47 (0.34–0.66)	<0.001	0.48 (0.34–0.66)	<0.001
No	1464	69.1	1.00		1.00	
Experienced any delivery complication						
Yes	535	62.1	0.71 (0.56–0.90)	0.005	0.68 (0.53–0.87)	0.003
No	1070	69.6	1.00		1.00	

^aUnweighted number.

^bWeighted percentage.

^cAdjusted for maternal age, marital status, place of residence, wealth status, maternal education, parity, multiple births, place of birth, baby's gender and mother's desire for the pregnancy.

TABLE 3 Association between immediate post-partum complications and breastfeeding initiation

	Number breastfed within 1 h ^a	% breastfed within 1 h ^b	Unadjusted odds ratio (95% CI)	p Value	Adjusted odds ratio (95% CI) ^c	p Value
Retained placenta (>30 min)						
Yes	71	42.6	0.33 (0.23–0.48)	<0.001	0.36 (0.24–0.52)	<0.001
No	1535	69.1	1.00		1.00	
High fever with foul discharge/abdominal pain						
Yes	196	63.6	0.85 (0.61–1.18)	0.33	0.87 (0.62–1.22)	0.41
No	1409	67.4	1.00		1.00	
Post-partum haemorrhage						
Yes	200	57.8	0.62 (0.47–0.83)	0.001	0.63 (0.47–0.84)	0.002
No	1411	68.7	1.00		1.00	
Convulsions/fits						
Yes	135	54.5	0.55 (0.40–0.77)	0.001	0.57 (0.41–0.79)	0.001
No	1475	68.4	1.00		1.00	
Any immediate post-partum complication						
Yes	360	58.4	0.60 (0.47–0.77)	<0.001	0.61 (0.47–0.79)	<0.001
No	1245	70.1	1.00		1.00	

^aUnweighted number.

^bWeighted percentage.

^cAdjusted for maternal age, marital status, place of residence, wealth status, maternal education, parity, multiple births, place of birth, baby's gender and mother's desire for the pregnancy.

convulsions. We found evidence that women who experienced any immediate post-partum complication were 39% less likely to initiate breastfeeding in the first hour after birth than those with no immediate post-partum complication (AOR: 0.61, 95% CI: 0.47–0.79). There was no evidence of an association between high fever with foul discharge in the immediate post-partum period and breastfeeding initiation.

3.3 | Obstetric and health care factors and breastfeeding initiation

Obstetric and health care factors associated with breastfeeding initiation are summarised in Table 4. Women who had skin-to-skin contact with their newborns after delivery were 47% more likely to initiate breastfeeding within the first hour (AOR: 1.47, 95% CI: 1.11–1.94) than those without skin-to-skin contact. Women who had a caesarean birth were 72% less likely than those who did not have a caesarean birth to initiate breastfeeding within the first hour after birth (AOR: 0.28, 95% CI: 0.18–0.41). Similarly, women who delivered outside of a healthcare facility (AOR: 0.70, 95% CI: 0.50–0.99) and those who delivered twins (AOR: 0.43, 95% CI: 0.22–0.85) were less likely to initiate breastfeeding within the first hour than those who delivered in a health care facility and those who had single birth, respectively. In the unadjusted and adjusted analyses, there was no evidence that the time to a baby's first bath

and wrapping of the baby minutes after birth were associated with breastfeeding initiation.

4 | DISCUSSION

We investigated the impact of intrapartum and post-partum complications and newborn care practices on breastfeeding initiation and found that women who experienced intrapartum haemorrhage, malpresentation and convulsions during childbirth were less likely to initiate breastfeeding early. In the immediate post-partum period, we found that women with retained placenta for more than 30 min after delivery, those who suffered a post-partum haemorrhage, and women who experienced convulsions after childbirth were less likely to initiate breastfeeding early. When we pooled the complications, it revealed that the experience of any intrapartum or post-partum complication decreased the likelihood of early breastfeeding initiation. Furthermore, childbirth outside a healthcare facility, multiple births and caesarean delivery reduced the likelihood of early breastfeeding initiation. However, mother–newborn skin-to-skin contact after birth increased the likelihood of early breastfeeding initiation. The time to a baby's first bath was not associated with breastfeeding initiation.

Interventions for intrapartum complications often include the administration of drugs. For example, women with slow-progressing labour are often subjected to induction and augmentation with

TABLE 4 Obstetric and healthcare factors associated with breastfeeding initiation

	Number breastfed within 1 h ^a	% breastfed within 1 h ^b	Unadjusted odds ratio (95% CI)	p Value	Adjusted odds ratio (95% CI) ^c	p Value
Mother–newborn skin-to-skin						
Yes	908	72.8	1.60 (1.20–2.14)	0.001	1.47 (1.11–1.94)	0.007
No	688	62.5	1.00		1.00	
Minutes after the delivery baby was wrapped						
0–5 min	1081	69.6	1.00	0.12	1.00	0.12
6–60 min	441	64.6	0.80 (0.59–1.06)		0.79 (0.59–1.06)	
When a baby is given the first bath						
Within 24 h	608	67.5	1.00	0.71	1.00	0.21
After 24 h	984	66.4	0.95 (0.72–1.25)		0.83 (0.61–1.11)	
Caesarean section						
Yes	79	43.3	0.28 (0.19–0.42)	<0.001	0.28 (0.18–0.41)	<0.001
No	966	73.1	1.00		1.00	
Place of childbirth						
Not in a health care facility	560	62.8	0.72 (0.52–0.98)	0.04	0.70 (0.50–0.99)	0.04
Health care facility	1045	70.3	1.00		1.00	
Multiple births						
Single	1588	67.2	1.00	0.01	1.00	0.02
Twin	17	46.9	0.43 (0.22–0.85)		0.43 (0.22–0.85)	

^aUnweighted number.

^bWeighted percentage.

^cAdjusted for maternal age, marital status, place of residence, wealth status, maternal education, parity, multiple births, place of birth, baby's gender and mother's desire for the pregnancy.

synthetic oxytocin to accelerate the delivery process (Bell et al., 2014; Wiklund et al., 2009). Most of the drugs administered during labour cross the placenta, and babies exposed to these interventions due to prolonged labour, intrapartum haemorrhage or convulsions often have difficulty latching and sucking in the first few hours after birth (Smith, 2007). Several studies have reported delayed breastfeeding initiation among women who experienced obstetric complications and prolonged labour (Dewey et al., 2003; Gurung et al., 2021; Lau et al., 2018). Further, malpresentation can predispose foetuses to foetal distress and women to exhaustion and anxiety, resulting in delayed breastfeeding initiation. Women may choose to rest, and neonates will be too tired to latch on to the breast, suckle or swallow immediately after birth (Lau et al., 2018; Tzeng et al., 2017). In addition, intrapartum haemorrhage puts women at risk of hypovolaemic shock, stressing them out and delaying breastfeeding initiation.

Stressful labour and delivery, whether due to malpresentation or convulsions, can delay lactogenesis and the flow of breast milk (Hurst, 2007), resulting in delayed breastfeeding initiation. Furthermore, post-partum haemorrhage, retained placenta and convulsions after delivery interrupt efforts towards successful breastfeeding

initiation. It has been noted that women who suffer post-partum complications are often separated from their babies for care activities, causing breastfeeding delays. In an earlier study, post-partum haemorrhage delayed breastfeeding initiation for 22.5 h (Henry & Britz, 2013). In addition, the retention of placental tissue fragments can inhibit breastfeeding hormones from having their full effect, causing a delay in breast milk production and initiation of breastfeeding (Anderson, 2001; Hurst, 2007). Nevertheless, a study in Singapore reported no association between intrapartum complications and breastfeeding initiation (Lau et al., 2018). Differences in the healthcare systems and support offered to mothers with intrapartum complications may explain the discrepancy.

Similar to our findings, a meta-analysis of 47 studies on the mode of delivery and 17 studies on skin-to-skin contact at birth found that women with spontaneous vaginal delivery were more likely to initiate breastfeeding early than those delivered through caesarean section (Cohen et al., 2018). In the meta-analysis, skin-to-skin contact was associated with two times higher odds of early breastfeeding initiation than no skin-to-skin contact (Cohen et al., 2018). Skin-to-skin contact increases the mother's oxytocin level in the first hour (which decreases maternal anxiety, increases calmness and

antagonizes the flight–fight effect), decreases stress in the baby, promotes optimal temperature, accelerates the maintenance of blood glucose levels and metabolic adaptation of the newborn (Jonas et al., 2007; Widström et al., 2019). Insufficient skin-to-skin contact probably contributed to the delayed breastfeeding initiation among women who had caesarean deliveries in this study. Because postcaesarean delivery care activities often disrupt bonding and contact between a mother and her newborn baby (Prior et al., 2012). Also, following a caesarean operation, women often experience difficulties with mobility and positioning, and babies delivered through caesarean section are often in poor conditions, hindering breastfeeding initiation (Tully & Ball, 2014). Consistent with our findings, an earlier study in Ethiopia and a pooled analysis of data from 30 sub-Saharan African countries reported early breastfeeding initiation among women delivered in a healthcare facility (Bergamaschi et al., 2019; Woldeamanuel, 2020). In principle, facility birth provides a platform for women to receive supervised professional care and support to facilitate breastfeeding initiation. Outside-facility deliveries are usually without professional support to educate and assist the mother to initiate breastfeeding early and may be associated with birth complications that further undermine early breastfeeding initiation.

Because pre-eclampsia and pregnancy-induced hypertension can result in convulsions during labour and post-partum, early blood pressure monitoring and urine protein tests may be beneficial in detecting these disorders throughout pregnancy. Women with epilepsy should be identified early and the appropriate interventions instituted, with plans for alternate delivery. Lactation counselling is recommended following delivery to help increase breast milk production and facilitate early breastfeeding initiation. It is possible to increase the likelihood of early breastfeeding initiation if malpresentation is detected and managed early in pregnancy. Pregnant women with atypical presentations, such as oblique and transverse, should be prepared for safe alternative delivery or transfer to higher-level facilities where expert services are available. Caesarean sections should only be performed when it is medically necessary. To minimize the impact of intrapartum and post-partum complications on breastfeeding initiation, health care professionals who assist in childbirth should be adequately trained in basic and comprehensive emergency obstetric care practises, including blood transfusion, administration of parenteral anticonvulsants, manual placenta removal and assisted vaginal delivery.

Routine post-partum procedures should be delayed until after the first hour or the first successful breastfeeding (Eidelman et al., 2012), and health care staff should encourage and assist women to practice skin-to-skin contact. The skin-to-skin contact should begin any time after delivery and remain uninterrupted for at least 60 min or until the baby has had the first breastfeeding. The use of drugs such as pethidine should be limited as this can sedate the infant (Righard & Alade, 1990). Because skin-to-skin contact can stimulate oxytocin secretion, it may help arrest post-partum haemorrhage and

facilitate the evacuation of retained placental tissues. It is best not to separate the newborn from the mother when dealing with post-partum issues. Post-natal mothers with delayed milk flow should be examined for retained placental fragments. Regular clinical meetings with obstetricians, nurses and midwives on infant feeding and care techniques will also be beneficial. In addition, the Baby-Friendly Hospital Initiative should be adopted and practised. In the community, mother-to-mother support groups can assist first-time mothers to prepare for skin-to-skin and early breastfeeding initiation.

The data for this study came from a population-based cohort study with a large enough sample to be generalizable. However, there are some limitations worth mentioning. Because the data on breastfeeding initiation were obtained retrospectively, there is a possibility of recall bias, which can distort our estimates. However, because data regarding the study were collected near the time of birth, recall bias will be minimal. The data source lacked variables on the timing and duration of skin-to-skin contact and standard hospital procedures. Our findings on skin-to-skin contact would have been better understood if we had information on these variables. Also, data on birthweight and gestational age at birth would have been useful to the analysis as low-birthweight and preterm babies need breastfeeding support. Future studies should consider the impact of timing and duration of skin-to-skin contact and routine postdelivery care procedures on breastfeeding initiation. Also, future studies should endeavour to collect data on breastfeeding initiation on the day of birth to minimize any recall bias.

5 | CONCLUSION

Our analysis revealed that breastfeeding initiation was delayed among women who experienced intrapartum or post-partum complications, caesarean delivery or gave birth outside of a healthcare facility. However, women who practised skin-to-skin contact after birth were more likely to initiate breastfeeding early.

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AUTHOR CONTRIBUTIONS

Shamsudeen Mohammed conceived and designed the study, accessed the data and performed the statistical analysis in consultation with Alhassan S. Abukari and Agani Afaya. Alhassan S. Abukari discussed the results and reviewed all the drafts. Agani Afaya conducted the literature search and commented on the methodology. All authors reviewed and approved the final draft of the manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from Performance Monitoring for Action Ethiopia (PMA Ethiopia), which is publicly available and can be accessed upon reasonable request.

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