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Prevalence of early initiation of breastfeeding and its associated factors among women in Mauritania: evidence from a national survey

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Abstract

Background Timely initiation of breastfeeding is crucial for positive health outcomes for babies and mothers. Understanding the factors influencing timely initiation of breastfeeding is vital for reducing child morbidities and mortalities in Mauritania. This study, therefore, assessed the prevalence of early initiation of breastfeeding and its associated factors among women in Mauritania, providing significant insights for improving maternal and child health in the country.

Methods We performed a secondary analysis of the 2019–2021 Mauritania Demographic and Health Survey data. A weighted sample of 4,114 mother-child pairs was included in the study. We used percentage to present the prevalence of early initiation of breastfeeding. A four-modelled multilevel binary logistic regression was used to examine the factors associated with early initiation of breastfeeding. The regression results were presented using adjusted odds ratio (aOR) with their respective 95% confidence interval (CI). Stata software version 17.0 was used to perform all the analyses.

Results The prevalence of early initiation of breastfeeding was 57.3% (95% CI 54.5, 60.00). Birth order was associated with early initiation of breastfeeding with the highest odds among those in the fourth birth order (aOR 1.61; 95% CI 1.08, 2.39). Mothers who practiced skin-to-skin contact were more likely to initiate breastfeeding early than those who did not (aOR 1.46; 95% CI 1.14, 1.87). There were regional disparities in the early initiation of breastfeeding. The odds of timely initiation of breastfeeding was lower among women who were delivered by caesarean section (aOR 0.22; 95%CI 0.14, 0.36), those who were working (aOR 0.57; 95% CI 0.45, 0.73), those who had four or more antenatal care visits (aOR 0.67; 95%CI 0.47, 0.94)], and those in the richest wealth quintile (aOR 0.61; 95% CI 0.38, 0.98) compared to those who had normal delivery, those who were not working, those who had zero antenatal care visits, and those in the poorest wealth quintile households, respectively.

Conclusion Our study found a relatively low prevalence of early initiation of breastfeeding among women in Mauritania. Factor such as birth order, region of residence, mother and newborn skin-to-skin contact after birth, antenatal care visits, caesarean delivery, employment status, and wealth index were associated with early initiation

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of breastfeeding. Improving optimal breastfeeding practices, such as early initiation of breastfeeding in Mauritania, should be given adequate attention. There is a need for interventions such as baby-friendly facilities, providing an enabling environment for mothers to breastfeed their newborns early. Addressing regional health access disparities is important to improve early initiation of breastfeeding and other maternal, newborn, and child health interventions.

Keywords Early initiation of breastfeeding, Timely initiation of breastfeeding, Mauritania, Demographic and Health Survey

Background

Breastfeeding is a crucial part of a child's early life and is considered one of the most effective strategy to improve the child's health and reduce the risk of morbidity and mortality [1]. The World Health Organization recommends early initiation of breastfeeding within one hour of birth, exclusive breastfeeding for the first six months of life, followed by continued breastfeeding with the introduction of complementary foods for up to two years or more [2, 3]. Early initiation of breastfeeding is defined as the initiation of breastfeeding within the first hour after delivery [3, 4].

Early initiation of breastfeeding contributes significantly to reducing preventable neonatal and child deaths, improving child survival rates, enhancing immune system resilience against infections, and lowering the risk of diarrhoea in neonates [5]. Additionally, epidemiological evidence has shown that the nutritional benefits of early initiation of breastfeeding include a lower risk of hypoglycemia in at-risk infants (e.g., small for gestational age and macrosomia infants), which can cause significant morbidity and mortality [6]. Despite the significant public health implications of early initiation of breastfeeding, women in many countries (especially those in low-and middle-income countries) fail to initiate breastfeeding early for their newborns [7, 8]. Annually, across the globe, about half of newborns do not get breast milk in the first hour after delivery [9]. In sub-Saharan Africa, timely initiation of breastfeeding is prevalent, with variations across countries [10, 11]. For instance, evidence from a previous systematic and meta-analysis study conducted using secondary data showed that the overall prevalence of early initiation of breastfeeding was 52.83%, with the lowest and highest proportions found in Guinea (16.54%) and Malawi (95.64%) [11], respectively.

Mauritania is located in West Africa, with a population of approximately 4.8 million as of 2021. It has vast expanses of pastoral land and only 0.5% of arable land [12]. Evidence has shown that only 40.3% of mothers breastfed exclusively during the first six months, whilst 61.8% practised early initiation of breastfeeding in Mauritania [13]. Reducing infant mortality and increasing breastfeeding could be pivotal to achieving the Sustainable Development Goals (SDGs), which aim to reduce under-five mortality by 25 deaths per 1,000 live births by 2030 [14].

In studies conducted in sub-Saharan Africa, early breastfeeding initiation has been linked to demographic, socioeconomic, and obstetric characteristics. Ogbo et al. [15] reported that Nigerian mothers with more than four antenatal visits, higher wealth household index, and health facility deliveries were more likely to initiate breastfeeding within one hour of birth. Other studies indicated that encouragement from health workers, assistance during delivery, multiparity, and immediate postpartum skin-to-skin contact between mother and newborn babies were associated with early initiation of breastfeeding [16, 17]. Several factors have been identified to hinder women's practise of early initiation of breastfeeding. Factors such as perception of a lack of breastmilk, the need for the mother and baby to rest after birth, post-birth cultural rituals including bathing, and the 'baby not crying for milk' were cited to hinder mothers initiation of breastfeeding within the first hour after delivery [16]. A study also highlighted that place of residence is a determinant of timely breastfeeding initiation, with higher rates reported among those in the urban areas than in rural areas [18].

Considering the benefits of timely initiation of breastfeeding on the growth and development of infants, this present study aims to assess the prevalence of early initiation of breastfeeding and its associated factors among women of childbearing age in Mauritania. Recognising factors associated with early initiation of breastfeeding in Mauritania is critical for developing effective nutrition education and behaviour change communication interventions for women at high risk of poor infant feeding practices.

Methods

Data source and design

We used secondary data from the Mauritania Demographic and Health Survey (DHS) conducted from 2019 to 2021. Data was extracted from the child's recode file, which had 11,628 observations for children aged below five years. DHS is a globally representative national survey conducted every five years in over 90 low- and middle-income countries [19]. The Mauritanian DHS used a cross-sectional design and a two-stage cluster sampling technique to sample respondents: women, children, and men [19, 20]. The comprehensive sampling methodology has already been published in the literature [19, 20]. Data

from the respondents was gathered using validated and pretested questionnaires. Trained data collectors conducted the survey. For this study, a weighted sample of 4114 mother-child pairs who had complete observations on the variables of interest was analysed. The dataset used can be accessed via https://dhsprogram.com/data/dataset/Mauritania_Standard-DHS_2020.cfm?flag=1.

Variables

Early initiation of breastfeeding was the outcome variable in this study. We assessed the early initiation of breastfeeding using the DHS question: "How long after birth did you first put [NAME] to the breast?" Mothers who responded that they breastfed their babies immediately after delivery or within the first hour were classified to practice early breastfeeding and coded as '1=yes'; otherwise, they were coded as '0=no'. Previous studies that used the DHS dataset employed similar coding [16–19, 21].

We included nineteen explanatory variables in the study, which were selected based on their association with early initiation of breastfeeding from previous studies [5, 21–28] and their availability in the Mauritanian DHS. We grouped the variables into individual levels (child and mother's characteristics) and contextual levels based on the literature [25]. The individual level variables consisted of sex of child, birth order, size of child at birth, caesarean section delivery, type of birth, mother's age, educational level, marital status, current working status, antenatal care visit, place of delivery, exposure to reading newspaper or magazine, exposure to listening to radio, exposure to watching television, usage of internet, and skin-to-skin contact. The contextual level variables were the household wealth index, place of residence, and region of residence. Detailed descriptions of the variables included in the study have been highlighted in the literature [25].

Statistical analyses

Stata software version 17.0 (Stata Corporation, College Station, TX, USA) was used for the analysis. We used percentages with a 95% confidence interval (CI) to present the results of the proportion of early initiation of breastfeeding. A Pearson chi-square test of independence was used to examine the distribution of early initiation of breastfeeding across the explanatory variables and their association at $p<0.05$. Before the regression analysis, we performed a collinearity test using the variance inflation factor (VIF), and the results showed that the minimum, maximum, and mean VIFs were 1.05, 3.42, and 1.90, respectively. Hence, there was no evidence of high collinearity among the variables. Later, we employed a four-modelled multilevel binary logistic regression to examine the factors associated with early initiation of breastfeeding. Model O had no explanatory variables and was, therefore, empty. Individual level, contextual level, and all explanatory variables were included in Model I, Model II, and Model III, respectively. Two results categories, fixed-effect and random-effect models were produced. Fixed effect results showed an association between the explanatory variables and early initiation of breastfeeding. Fixed effect results were presented as adjusted odds ratio (aOR) with their respective 95% CI. The random effect quantifies the variation in early initiation of breastfeeding, which is evident by the intra-class correlation coefficient. The Akaike Information Criterion was used to assess the fitness of the models; the model with the lowest Akaike Information Criterion value was chosen as the best-fitted model. Hence, the results in Model III were interpreted and discussed. The cutoff for statistical significance was $p<0.05$. We weighted all analyses per the DHS guidelines to account for the disproportionate sample and non-response [19].

Results

Prevalence and distribution of early initiation of breastfeeding across the explanatory variables

Table 1 presents the results of the prevalence of early initiation of breastfeeding and its distribution across the explanatory variables. The proportion of mothers who breastfed their babies early was 57.3% (54.5, 60.0). Among the child characteristics, the proportion of early initiation of breastfeeding was high among females (58.5%), fourth-order children (61.8%), large size babies at birth (63.0%), those delivered normally (through vaginal delivery) (59.8%), and single birth children (57.3%). Early initiation of breastfeeding was prevalent among mothers aged 35 and above (59.2%), those with no education (63.0%), those who were widowed (58.9), unemployed (59.2%), those who delivered at home (64.0%), those with no history of antenatal care visits (64.3%), those who practised skin-to-skin contact (60.4%), those who listened to the radio (58.4%), those not exposed to watching television (61.7%), those not exposed to reading the newspaper or magazine (58.4%), and those not exposed to using the internet (61.3%). For the contextual-level variables, early initiation of breastfeeding was prevalent among mothers in the poorer wealth quintile (64.6%), those residing in rural areas (62.9%), and those in Guidimagha region (81.2%). Birth order (0.001), caesarean section delivery (<0.001), mother's level of education (<0.001), current working status (<0.001), antenatal care visits (0.013), place of delivery (<0.001), skin-to-skin contact after delivery (0.006), exposure to watching television (<0.001), exposure to reading newspaper or magazine (0.011), internet usage (<0.001), wealth index (<0.001), place of residence (<0.001), and region of

Table 1 Bivariable analysis of early initiation of breastfeeding

Variables	Weighted	Early initiation of breastfeeding	
	N (%)	Yes % (95% CI)	*p*-value
Prevalence		57.3 (54.5, 60.0)	
Sex of child			0.190
Male	2,058 (50.0)	56.1 (53.0, 59.1)	
Female	2,056 (50.0)	58.5 (55.0, 61.8)	
Birth order			0.001
First	785 (19.1)	51.7 (46.5, 56.9)	
Second	731 (17.8)	51.9 (47.0, 56.8)	
Third	629 (15.3)	58.0 (52.8, 63.0)	
Fourth	522 (12.7)	61.8 (55.9, 67.3)	
Fifth or more	1,446 (35.2)	61.0 (57.2, 64.8)	
Size of child at birth			0.247
Large	282 (6.9)	63.0 (55.0, 70.2)	
Average	2,001 (48.6)	57.6 (54.2, 61.0)	
Small	1,831 (44.5)	56.0 (52.4, 59.6)	
Delivery by caesarean section			< 0.001
No	3,855 (93.7)	59.8 (57.1, 62.5)	
Yes	259 (6.3)	19.0 (13.5, 26.2)	
Type of birth			0.605
Single	4,047 (98.4)	57.3 (54.6, 60.0)	
Multiple	67 (1.6)	53.5 (39.1, 67.4)	
Mother's age			0.287
15–24	1,155 (28.1)	55.0 (50.8, 59.2)	
25–34	1,958 (47.6)	57.6 (54.3, 60.8)	
35 and above	1,001 (24.3)	59.2 (54.7, 63.5)	
Maternal educational level			< 0.001
No education	1,525 (37.1)	63.0 (59.0, 66.8)	
Primary	1,806 (43.9)	56.9 (53.0, 60.7)	
Secondary or higher	783 (19.0)	47.0 (42.3, 51.8)	
Marital status			0.585
Never in union	23 (0.6)	56.2 (54.8, 60.3)	
Married	3,825 (93.0)	57.6 (54.8, 60.3)	
Widowed	22 (0.5)	58.9 (34.4, 79.6)	
Divorced	243 (5.9)	52.1 (44.2, 60.0)	
Current working status			< 0.001
Not working	3,341 (81.2)	59.2 (56.3, 62.0)	
Working	773 (18.8)	49.1 (44.1, 54.2)	
Antenatal care visits			0.013
None	456 (11.1)	64.3 (58.6, 69.7)	
1–3	1,928 (46.8)	58.1 (54.3, 61.7)	
4 or more	1,730 (42.1)	54.5 (51.0, 58.1)	
Place of delivery			< 0.001
Home	1,114 (27.1)	64.0 (59.7, 68.0)	
Health facility	3,000 (72.9)	54.8 (51.6, 57.9)	
Skin-to-skin contact			0.006
No	2,082 (50.6)	54.2 (50.5, 57.9)	
Yes	2,032 (49.4)	60.4 (57.1, 63.6)	
Exposed to watching television			< 0.001
No	2,276 (55.3)	61.7 (58.2, 65.0)	
Yes	1,838 (44.7)	51.8 (48.0, 55.6)	
Exposed to listening to radio			0.421
No	2,263 (55.0)	56.3 (52.4, 60.1)	

Table 1 (continued)

Variables	Weighted	Early initiation of breastfeeding	
	N (%)	Yes % (95% CI)	*p*-value
Yes	1,851 (45.0)	58.4 (54.8, 62.0)	
Exposed to reading newspaper/magazine			0.011
No	3,515 (85.4)	58.4 (55.3, 61.5)	
Yes	599 (14.6)	50.5 (45.3, 55.6)	
Use internet			< 0.001
No	2,864 (69.6)	61.3 (58.3, 64.2)	
Yes	1,250 (30.4)	48.0 (43.4, 52.7)	
Wealth index			< 0.001
Poorest	967 (23.5)	64.3 (59.4, 68.9)	
Poorer	913 (22.2)	64.6 (60.2, 68.8)	
Middle	834 (20.3)	56.5 (51.9, 61.1)	
Richer	764 (18.6)	52.6 (46.2, 58.9)	
Richest	636 (15.5)	42.7 (37.2, 48.4)	
Place of residence			< 0.001
Urban	1,699 (41.3)	49.2 (44.5, 53.9)	
Rural	2,415 (58.7)	62.9 (59.9, 65.9)	
Region of residence			< 0.001
Hodh Echargui	631 (15.3)	49.6 (42.6, 56.5)	
Hodh Gharbi	493 (12.0)	67.7 (60.6, 74.1)	
Assaba	366 (8.9)	66.9 (58.0, 74.7)	
Gorgol	384 (9.3)	55.9 (48.9, 62.7)	
Brakna	345 (8.4)	63.3 (57.1, 69.0)	
Trarza	214 (5.2)	55.2 (47.1, 62.9)	
Adrar	66 (1.6)	59.0 (47.7, 69.4)	
Dakhlet Nouadhibou	114 (2.8)	58.2 (47.7, 68.0)	
Tagant	95 (2.3)	61.4 (54.9, 67.6)	
Guidimagha	409 (9.9)	81.2 (76.7, 85.0)	
Tiris zemour et Inchiri	67 (1.6)	47.1 (37.0, 57.4)	
Nouakchott Ouest	162 (3.9)	43.9 (33.4, 54.9)	
Nouakchott Nord	410 (10.0)	33.6 (23.0, 46.0)	
Nouakchott Sud	359 (8.7)	49.7 (38.6, 60.9)	

**P*-values were generated from chi-square test

residence (<0.001) were statistically associated with early initiation of breastfeeding at $p<0.05$.

Factors associated with early initiation of breastfeeding

Table 2 presents the results of the factors associated with early initiation of breastfeeding in Mauritania. The results showed that birth order was associated with early initiation of breastfeeding with the highest odds among those in the fourth birth order (aOR 1.61; 95%CI 1.08, 2.39). Mothers who practised skin-to-skin contact immediately after birth were more likely to initiate breastfeeding early compared to those who did not (aOR 1.46; 95% 1.14, 1.87). Compared to mothers from Hodh Echargui region, those from Hodh Gharbi (aOR 3.07; 95%CI 1.95, 4.85), Assaba (aOR 2.36; 95%CI 1.48, 3.77), Brakna (aOR 2.18; 95% CI 1.41, 3.38), Adrar (aOR 1.91; 95% CI 1.01, 3.62), Dakhlet Nouadhibou (aOR 2.61; 95%CI 1.39, 4.89), Tagant (aOR 1.93; 95% CI 1.24, 2.99), and Guidimagha (aOR 5.13; 95%CI 3.36, 7.86) had higher odds of practicing early initiation of breastfeeding.

However, the odds of early initiation of breastfeeding was lower among women who were delivered by caesarean section (aOR 0.22; 95%CI 0.14, 0.36), those who were working (aOR 0.57; 95%CI 0.45, 0.73), those who had four or more antenatal care visits (aOR 0.67; 95%CI 0.47, 0.94, and those in the richest wealth quintile (aOR 0.61; 95%CI 0.38, 0.98) compared to those who had normal delivery, those who were not working, those with zero antenatal care visits, and those from the poorest wealth index households, respectively.

Discussion

Using a nationally representative dataset, our current study examined the prevalence of early initiation of breastfeeding and its associated factors in Mauritania. The results showed that the prevalence of early initiation

Table 2 Factors associated with early initiation of breastfeeding in Mauritania

Variable	Model O	Model I aOR (95% CI)	Model II aOR (95% CI)	Model III aOR [95% CI]
Fixed-effect results				
Birth order				
First		1.00		1.00
Second		1.02 (0.75, 1.38)		1.01 (0.75, 1.38)
Third		1.46* (1.08, 1.99)		1.48* (1.09, 2.01)
Fourth		1.56* (1.05, 2.31)		1.61* (1.08, 2.39)
Fifth or more		1.41* (1.08, 1.85)		1.42* (1.08, 1.87)
Delivery by caesarean section				
No		1.00		1.00
Yes		0.20*** (0.12, 0.33)		0.22*** (0.14, 0.36)
Maternal educational level				
No education		1.00		1.00
Primary		0.85 (0.68, 1.07)		0.88 (0.69, 1.10)
Secondary or higher		0.77 (0.58, 1.03)		0.85 (0.63, 1.14)
Current working status				
Not working		1.00		1.00
Working		0.59*** (0.46, 0.75)		0.57*** (0.45, 0.73)
Antenatal care visits				
None		1.00		1.00
1–3		0.80 (0.58, 1.11)		0.79 (0.57, 1.09)
4 or more		0.70* (0.50, 0.98)		0.67* (0.47, 0.94)
Place of delivery				
Home		1.00		1.00
Health facility		0.97 (0.74, 1.27)		1.03 (0.78, 1.36)
Skin-to-skin contact				
No		1.00		1.00
Yes		1.43** (1.13, 1.82)		1.46** (1.14, 1.87)
Exposed to reading newspaper or magazine				
No		1.00		1.00
Yes		1.09 (0.83, 1.44)		1.11 (0.85, 1.46)
Exposed to watching television				
No		1.00		1.00
Yes		0.90 (0.72, 1.14)		0.98 (0.76, 1.27)
Use internet				
No		1.00		1.00
Yes		0.82 (0.64, 1.04)		0.90 (0.71, 1.15)
Wealth index				
Poorest			1.00	1.00
Poorer			0.96 (0.70, 1.32)	0.95 (0.69, 1.31)
Middle			0.73 (0.53, 1.01)	0.77 (0.55, 1.09)
Richer			0.71 (0.48, 1.06)	0.85 (0.56, 1.29)
Richest			0.47** (0.30, 0.75)	0.61* (0.38, 0.98)
Place of residence				
Urban			1.00	1.00
Rural			0.93 (0.69, 1.25)	0.89 (0.65, 1.22)
Region of residence				
Hodh Echargui			1.00	1.00
Hodh Gharbi			2.74*** (1.74, 4.32)	3.07*** (1.95, 4.85)
Assaba			2.22*** (1.42, 3.47)	2.36*** (1.48, 3.77)
Gorgol			1.50* (1.01, 2.22)	1.47 (0.98, 2.21)
Brakna			2.29*** (1.52, 3.45)	2.18*** (1.41, 3.38)
Trarza			1.61* (1.01, 2.57)	1.47 (0.88, 2.46)

Table 2 (continued)

Variable	Model O	Model I aOR (95% CI)	Model II aOR (95% CI)	Model III aOR [95% CI]
Adrar			2.05* (1.11, 3.80)	1.91* (1.01, 3.62)
Dakhlet Nouadhibou			2.59** (1.42, 4.71)	2.61** (1.39, 4.89)
Tagant			1.91** (1.28, 2.87)	1.93** (1.24, 2.99)
Guidimagha			5.07*** (3.35, 7.67)	5.13*** (3.36, 7.86)
Tiris zemour et Inchiri			1.46 (0.80, 2.68)	1.37 (0.72, 2.60)
Nouakchott Ouest			1.22 (0.61, 2.45)	1.28 (0.62, 2.62)
Nouakchott Nord			0.78 (0.39, 1.58)	0.88 (0.43, 1.83)
Nouakchott Sud			1.48 (0.80, 2.76)	1.24 (0.65, 2.34)
Random effect model				
Primary sampling unit variance (95% CI)	0.793 (0.598, 1.051)	0.735 (0.549, 0.984)	0.490 (0.351, 0.684)	0.498 (0.352, 0.706)
Intra-class correlation coefficient	0.194	0.183	0.130	0.132
Wald chi-square	Reference	118.35 (< 0.001)	121.00 (< 0.001)	219.76 (< 0.001)
Model fitness				
Log-likelihood	-2651.8245	-2541.1036	-2594.6596	-2498.1924
Akaike Information Criterion	5307.649	5116.207	5229.319	5066.385
N	4114	4114	4114	4114
Number of clusters	405	405	405	405

aOR = adjusted odds ratios; CI = Confidence Interval; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$; 1.00 = Reference category

of breastfeeding was 57.3%. Factors associated with early initiation of breastfeeding were the child's birth order, mother's delivery by caesarian section, current working status, antenatal care visits, skin-to-skin contact, wealth index, and region of residence.

In our current study, the prevalence of early initiation of breastfeeding was 57.3%. Our finding is similar to the 61% in Tigray, Ethiopia [29], 51% in Bangladesh [24], and 57.36% in Ghana [21]. These results reflect socio-economic and health infrastructural similarities among these resource-constrained countries, leading to sub-optimal healthy behaviours such as early initiation of breastfeeding. However, the prevalence of early initiation of breastfeeding reported in the present study is lower than those found in studies conducted in Tanzania (83%) [30], Malawi (76.9%) [31], Ghana (72%) [32], and Zimbabwe (78%) [17]. Inadequate comprehensive knowledge of the importance of early initiation of breastfeeding, breastfeeding taboos, sociocultural beliefs, and sex preferences could have accounted for the low prevalence of early initiation of breastfeeding found in our study [16, 26].

Mothers who practised skin-to-skin at birth were more likely to initiate breastfeeding within the first hour. Our results reflect the findings of studies conducted in Romania [33] and Zimbabwe [17] where higher likelihood of early initiation of breastfeeding were associated with the practice of skin-to-skin. Also, our finding is consistent with a study conducted in 17 countries in sub-Saharan Africa [25], which found a higher likelihood of early initiation of breastfeeding among mothers who practiced skin-to-skin contact at birth. Studies have shown that skin-to-skin contact creates an avenue for sensory experiences of touch and thermal regulation, an important factor. This essential factor helps to trigger the release of oxytocin for breastmilk production and, subsequently, early initiation of breastfeeding [17, 34]. Mother and newborn skin-to-skin contact provides ample time for the baby around the mother after delivery, which ensures that the baby is put to the breast early.

Moreover, a child's birth order was associated with early initiation of breastfeeding, with higher odds among those with higher birth order. Previous studies conducted in India [35] and Mexico [36] reported similar findings where the birth order of children was associated with early initiation of breastfeeding. Admittedly, increasing birth order is closely related to women encountering many birthing experiences during their reproductive life, having access to health information, and becoming more experienced about best birthing practices, leading to their readiness to practise early initiation of breastfeeding.

Furthermore, women who were employed and currently working were less likely to practice early initiation of breastfeeding than their non-working counterparts. Our finding is consistent with those of previous studies [37, 38], which reported that working-class women are less likely to breastfeed their babies due to time constraints, concerns about body image, worry about career or professional work, and modernisation to influence their choices of breastfeeding.

Our study revealed that caesarean section delivery is associated with lower odds of early initiation of breastfeeding. The finding in the present study aligns with those of previous studies, which reported lower odds of early initiation of breastfeeding among women who were delivered through caesarean sections compared to those with normal or vaginal delivery [17, 24, 39–41].

Consequentially, all these studies asserted that caesarean section delays early initiation of breastfeeding, revealing postoperative pain, hormonal problems, and separation of mother and baby after delivery as attending factors to this phenomenon. Nonetheless, lower early initiation of breastfeeding with caesarean section could be improved as a high cadre of health professionals are always available during caesarean section, making it practicably acceptable for a child to be put to the breast for skin-to-skin and early initiation of breastfeeding. Improved pain education and other interventions in Mauritania, placing importance on early initiation of breastfeeding and targeted additional support for women who undergo caesarean section in the immediate post period, could lead to an increase in early initiation of breastfeeding.

Our results also revealed lower odds of early initiation of breastfeeding among mothers with four or more antenatal care visits. This has been contrasted in sub-Saharan Africa [21], Uganda [42], Ethiopia [40], Romania [33], and India [43], where increased antenatal care visits meant mothers were exposed to health information, making them knowledgeable and cooperative in undertaking early initiation of breastfeeding immediately after delivery. Comparatively, a study conducted in Bangladesh using the DHS dataset reported no statistically significant association between increasing antenatal care attendance and early initiation of breastfeeding [24]. Our finding calls for more empirical studies to be conducted to ascertain the factors or reasons contributing to such an inverse association between antenatal care attendance and early initiation of breastfeeding. We further postulate that effective and tailored education should be enhanced during antenatal care and before delivery. Also, one-on-one counselling and education of pregnant women should be emphasised in Mauritania to help curb this menace.

In this study, improved wealth status was associated with a lower likelihood of practising early initiation of breastfeeding in Mauritania. This finding corroborates with studies in Bangladesh [24, 39], Sri Lanka [44], and Indonesia [45]. Differing from this finding are studies in Cambodia [46], Nigeria [18], and sub-Saharan Africa [47]. A plausible reason for this finding is that wealthier women may have been influenced by modern trends, such as substituting breastmilk for other alternatives like infant formula feeding [45, 48]. Additionally, such women have the financial ability to purchase these alternatives. On the other hand, women from poorer wealth classes may have financial limitations in accessing alternative feeding; hence, they opt for free breastmilk [39, 45].

The study found regional variations in the likelihood of early initiation of breastfeeding, with women from Hodh Gharbi, Assaba, Gorgol, Brakna, Trarza, Adrar, Dakhlet Nouadhibou, Tagant, and Guidimagha having a higher probability of breastfeeding their newborns early. The exact reason(s) contributing to this association are not known. We recommend further studies be conducted to ascertain the factors contributing to the regional variations in early initiation of breastfeeding.

Strengths and limitations of the study

The major strength of this study is the use of a nationally representative dataset to examine the prevalence and predictors of early initiation of breastfeeding. However, some limitations need to be acknowledged. First, the DHS used a cross-sectional design, limiting our study's ability to draw causal inferences. Additionally, the data was collected using self-reporting, which could subject the data to recall and social desirability biases.

Conclusion

This study found a relatively low prevalence of early initiation of breastfeeding among women in Mauritania. The factors associated with early initiation of breastfeeding include the child's birth order, employment status, skin-to-skin contact, antenatal care visits, caesarean delivery, wealth index, and region of residence. Interventions and programme development and implementation should leverage these factors found in the study. Also, awareness creation and education on the importance of early initiation of breastfeeding should be intensified among the working class, those from wealthy households, and those attending antenatal care.

Abbreviations

aOR	Adjusted Odds Ratio
CIs	Confidence Intervals
DHS	Demographic and Health Survey
SDG	Sustainable Development Goal
VIF	Variance Inflation Factor

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Author contributions

MS and RGA conceived the study. RGA, JA-K, and LAA wrote the methods section and performed the data analysis. MS, GAA, LAA, JA-K, GE, and KA were responsible for the initial draft of the manuscript. All the authors reviewed and approved the final version of the manuscript.

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Data availability

The dataset used can be accessed via the MEASURE DHS repository https://dhsprogram.com/data/dataset/Mauritania_Standard-DHS_2020.cfm?flag=1.

Declarations

Ethics approval and consent to participate

We did not seek ethical clearance for this study because the DHS received ethical clearance from the Ethics Review Committee of ORC Macro Inc. and the Ethics Review Committees of partner organizations in Mauritania such as the Ministries of Health. The detailed ethical guidelines and standards can be accessed at http://goo.gl/ny8T6X.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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