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Early Initiation of Breastfeeding: Prevalence and Associated Factors among Infants Aged 0 to 6 Months at the Institute of Social Pediatrics of Pikine-Guédiawaye in Senegal

Ndèye Fatou Sow[1*], Jean Baptiste Niokhor Diouf[2], Aminata Mbaye[1], Yaay Joor Koddu Biggé Dieng[1], Amadou Sow[1], Djibril Boiro[1], Awa Kane[1], Guillaye Diagne[1], Djénéba Fafa Cisse[1], Abdallah Diallo[3], Abou Ba[1], Ousmane Ndiaye[1]

[1]Pediatric Department, Cheikh Anta Diop University, Dakar, Senegal
[2]Roi Baudoin Hospital, Guédiawaye, Senegal
[3]Institute of Social Pediatrics, Cheikh Anta Diop University, Dakar, Senegal
Email: *ndeyfatsow@hotmail.com

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Abstract

Introduction: Early initiation of breastfeeding (EIBF) is essential for neonatal survival and the establishment of sustained breastfeeding. This study aimed to assess the prevalence of EIBF and identify associated factors at the Institute of Social Pediatrics in Pikine-Guédiawaye between 2021 and 2022. **Methods:** We conducted a cross-sectional, descriptive, and analytical study involving 350 infants aged 0 - 6 months, recruited between November 1, 2021 and February 28, 2022, at the vaccination unit of the Pikine-Guédiawaye branch. **Results:** The mean age of the infants was 2.5 ± 3.7 months, with most belonging to the 1 - 2-month age group (30%). Females were slightly more numerous (sex ratio = 0.93). The majority (86%) had a normal birth weight (3119 ± 556 g). The mean maternal age was 27.9 ± 5.5 years, with a predominance of the 20 - 30-year age group (55.7%). Over one-third (37.5%) of the mothers were multiparous. In total, 60.3% were educated; 40.9% were homemakers and 40% had income-generating activities. Nearly all were married (98.9%). Most pregnancies were singleton (99.7%) and were followed by a certified midwife (93.1%). Three-quarters (74%) of the mothers had at least four antenatal consultations. Deliveries were full-term in 94.3% of cases, primarily taking place in health posts (41.7%) and through vaginal delivery (89.7%). Among the 350 infants included, 195 (55.7%) were breastfed within the first hour of life. The mean time to initiation was 8 ± 21.1 hours, and the mean time to mother-infant reunion was

5 ± 17.4 hours. Early initiation of breastfeeding was significantly associated with the place of delivery (p = 0.028) and mode of delivery (p = 0.004). Maternal age showed a borderline association (p = 0.181). **Conclusion:** Early initiation of breastfeeding is a key determinant of neonatal morbidity and mortality. Strengthening awareness among pregnant women about this practice is crucial to ensure that every newborn receives the best possible start in life.

Keywords

Early Initiation of Breastfeeding, Newborn, Infant, Senegal

1. Introduction

Immediate newborn care, as recommended by the World Health Organization (WHO), is a key area of intervention for improving perinatal survival [1]. It includes early initiation of breastfeeding (EIBF), which is defined as starting breastfeeding within the first hour after birth. This practice promotes a healthy start in life, contributes to infant survival, and supports the establishment of sustained breastfeeding [2] [3]. It is also a key indicator for evaluating infant and young child feeding practices [4], yet EIBF is not universally practiced. Rates vary significantly across regions. To improve newborn feeding practices, especially in low-resource settings, it is essential to identify the barriers to effective implementation. In this context, we conducted a study at the Institute of Social Pediatrics (ISP) of Guédiawaye, in the suburbs of Dakar, with the objectives of determining the prevalence of early initiation of breastfeeding among infants seen at the ISP and identifying factors associated with delayed initiation.

2. Patients and Methods

2.1. Study Setting

The Institute of Social Pediatrics (ISP) is a university-based institute under the joint supervision of the Ministry of Health and Social Action of Senegal (MSAS) and Cheikh Anta Diop University (UCAD) of Dakar. The ISP provides healthcare (consultations, vaccinations), nutritional care, training, research, and technical support to improve maternal and child health in underserved areas.

2.2. Study Design and Duration

This was a cross-sectional, descriptive, and analytical study conducted over a four-month period from November 1, 2021, to February 28, 2022.

2.3. Study Population

The study population consisted of infants seen at the vaccination unit of the center. Included were infants aged 0 to 6 months. Prior to participation, informed consent was obtained from all mothers; consent was oral after a clear explanation

of the study objectives and assurance of confidentiality. Infants not accompanied by their mothers or with incomplete information on the primary outcome (time to initiation of breastfeeding) or on key covariates for multivariable modeling were excluded.

2.4. Sampling Procedure

We used an exhaustive (consecutive) sampling method during the entire study period: all eligible mother-infant pairs who attended the vaccination unit during the study period were approached. This approach minimizes selection bias from arbitrary sampling frames.

2.5. Data Collection

To ensure accurate transcription, interviews were conducted in Wolof, a national language spoken by over 80% of the population and fluently spoken by the lead investigator. Interviews were conducted during vaccination sessions in a quiet setting. A semi-structured interview guide was developed and pre-tested with five mothers before the main survey. A data collection form was also used. Time to first breastfeeding was assessed by maternal recall during interviews. Mothers were specifically asked, "How long after birth was your baby first put to the breast?" Consistent with WHO recommendations, initiation within one hour was classified as EIBF.

2.6. Data Analysis

Collected variables included maternal characteristics, prenatal care, delivery conditions, and infant feeding practices. Data entry was done using Epi Info version 7, and analysis was conducted with SPSS version 21. For bivariate analysis, the chi-square test was used. A p-value < 0.05 was considered statistically significant. All variables with $p \leq 0.25$ in bivariate analysis were entered into the multivariate logistic regression model, including maternal age, place of delivery and mode of delivery. Model calibration was assessed with the Hosmer-Lemeshow goodness-of-fit test ($p = 0.568$), indicating an adequate fit.

3. Results

The study included 350 infants. The mean age of the children was 2.5 ± 3.7 months, with a predominance of the 1 - 2-month age group (30%). The sex ratio was 0.93, indicating a slight predominance of females. Most children (86%) had a normal birth weight (3119 ± 556 g) (**Figure 1**).

The mothers' mean age was 27.9 ± 5.5 years, predominantly in the 20 - 30-year age group (55.7%). More than one-third (37.5%) were multiparous. Sixty percent had some level of education; 40.9% were homemakers, while 40% had an income-generating activity. The majority (98.9%) were married.

Pregnancies were mostly single (99.7%) and were followed by a certified midwife in 93.1% of cases. Seventy-four percent had attended at least four prenatal consul-

tations. Ninety-four percent of deliveries were at term. Most deliveries occurred in health posts (41.7%) and were vaginal (89.7%).

Among the 350 infants, 195 (55.7%) were breastfed within the first hour of life. The mean time to breastfeeding initiation was 8 ± 21.1 hours, and the mean time to mother-infant reunion was 5 ± 17.4 hours.

In bivariate analysis, early initiation of breastfeeding was significantly associated with place of delivery (p = 0.028) and mode of delivery (p = 0.004). Maternal age showed a near-significant association (p = 0.181) (Table 1, Table 2).

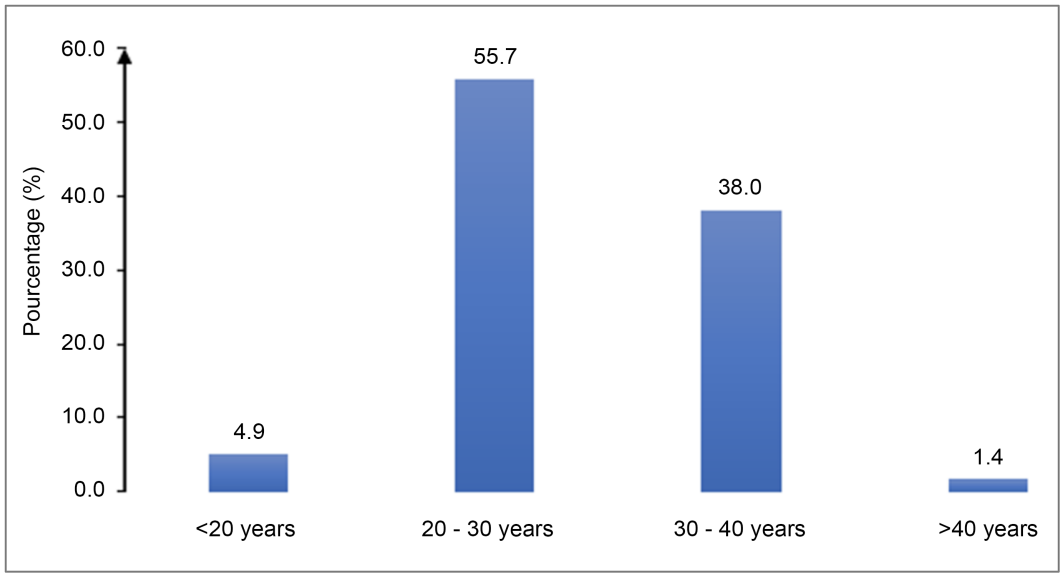

Figure 1. Distribution of mothers by age group.

Table 1. Maternal, delivery, and infant characteristics according to early initiation of breastfeeding.

Parameters	Early Initiation n (%)	No Early Initiation n (%)	Total
Mother's age			
<20 years	13 (76.5%)	4 (23.5%)	17
20 - 29 years	109 (55.9%)	86 (44.1%)	195
>30 years	73 (52.9%)	65 (47.1%)	138
Maternal education level			
No formal education	74 (52.1%)	68 (47.9%)	142
Educated	121 (58.1%)	87 (41.9%)	208
Child's sex			
Female	99 (54.7%)	82 (45.3%)	181
Male	96 (56.8%)	73 (43.2%)	169
Gestational age			
Full-term	186 (56.4%)	144 (43.6%)	330
Post-term	7 (58.3%)	5 (41.7%)	12
Pre-term	2 (25.0%)	6 (75.0%)	8

Continued

Place of delivery			
Clinic	22 (52.4%)	20 (47.6%)	42
Health center	47 (52.8%)	42 (47.2%)	89
Hospital	32 (43.8%)	41 (56.2%)	73
Health post	94 (64.4%)	52 (35.6%)	146
Mode of delivery			
Cesarean section	12 (33.3%)	24 (66.7%)	36
Vaginal delivery	183 (58.3%)	131 (41.7%)	314

Table 2. Factors associated with delayed early initiation of breastfeeding.

Factors	Adjusted Odds Ratio (AOR)		95% Confidence Interval
	OR	p-value	
Mother's age			
<20 years	1	-	-
20 - 29 years	1.1	0.568	[0.7 - 1.8]
>30 years	3.5	0.041*	[1.1 - 11.8]
Place of delivery			
Clinic	1.4	0.342	[0.7 - 2.9]
Health center	1.5	0.129	[0.9 - 2.6]
Hospital	2.1	0.011*	[1.2 - 3.8]
Health post	1	-	-
Mode of delivery			
Cesarean section	2.5	0.018*	[1.2 - 5.2]
Vaginal delivery	1	-	-

OR: Odd Ratio. *p < 0.05.

4. Discussion

More than half (55.7%) of newborns and infants in our study were breastfed within the first hour after birth. According to the 2018 Senegal Demographic and Health Survey (DHS), this rate was only 30% nationally [5]. Despite some improvement, this prevalence remains low compared with several African countries, including Ethiopia (73.4%), Malawi (95.6%), Mozambique (77.7%), and Rwanda (81.5%) [6] [7]. In West Africa, DHS data reported early breastfeeding initiation rates of 64% in Mali (2018) and 43% in Côte d'Ivoire (2021) [8] [9]. These marked global variations likely reflect inconsistent national policies on early initiation of breastfeeding, unequal access to information, and differing levels of adherence to WHO guidelines. Victora *et al.* observed that early breastfeeding initiation was less frequent in low-income countries than in high-income countries, with rates as high as 94% reported in Italy [10]. Regional disparities also underscore the absence of harmonized international strategies (**Figure 2**).

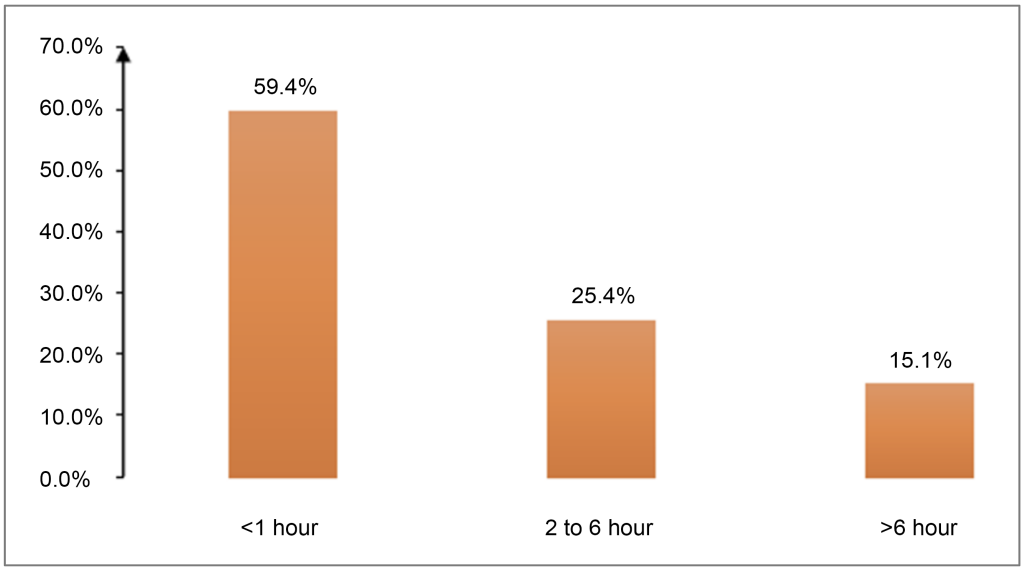

Figure 2. Distribution of infants by time to return to the mother after birth.

Although maternal age was not statistically significant, younger mothers (under 30 years) tended to initiate breastfeeding earlier. In Ghana, Boakye-Yiadom *et al*. also reported an association between advanced maternal age and delayed EIBF initiation [11]. In contrast, a study conducted in Morocco showed that EIBF was more frequent among women over 35 years of age (25.23%) than among younger women, particularly those under 20 years (11.1%) [12].

In our study population, 60% of women were educated. The rate of EIBF was slightly higher among educated women, although this variable was not significantly associated with EIBF. In India, Senanayake *et al*. demonstrated that women with higher education levels were more likely to practice EIBF [13]. Similarly, in Nigeria, a Demographic and Health Survey revealed that less-educated women tended to initiate breastfeeding later [14].

Conversely, in Peru, Hernández-Vásquez *et al*. reported that mothers with education beyond secondary school were less likely to initiate breastfeeding within the first hour after birth compared with those with primary or no formal education [15]. These findings suggest that educational level may influence EIBF, likely due to better access to information and improved understanding of health recommendations.

In Ethiopia, John *et al*. found no significant difference in early initiation of breastfeeding (EIBF) between educated and uneducated mothers [7]. In the same study, female newborns were significantly more likely to benefit from EIBF—a difference that was not observed in our population. This disparity may be attributed to culturally influenced practices based on the sex of the child [7].

In Nigeria, colostrum feeding is sometimes hindered by cultural beliefs [16]. In Senegal, the practice of "*tokhantal*", which involves giving blessed water to the newborn, frequently delays the initiation of breastfeeding [17].

In our study, vaginal delivery was significantly associated with early initiation,

supporting findings from previous studies showing cesarean section as a major barrier. In Nigeria, the 2013 Demographic and Health Survey reported that the likelihood of EIBF was three times higher among mothers who had vaginal deliveries compared with those who had cesarean sections (adjusted OR = 3.08; 95% CI = 2.14 - 4.46) [18]. Similar findings were reported in Ethiopia [7].

The global increase in cesarean deliveries has contributed to a decline in EIBF rates. Several studies have shown that surgical delivery often delays skin-to-skin contact and the initiation of breastfeeding [19] [20]. In addition, other factors, such as prolonged hospitalization, extended mother-infant separation, medical complications, and post-operative care, may interfere with EIBF [7].

It is therefore essential to raise awareness among women about the importance of EIBF and to ensure its feasibility regardless of the mode of delivery. In Rabat, a 2019 study showed that 24% of women who underwent cesarean delivery received assistance from a nurse to initiate breastfeeding, while 72% expressed the need for such support. This need for assistance was significantly associated with delayed breastfeeding initiation [12]. This suggests the importance of post-operative support to enable breastfeeding initiation even after surgical births. Operationalizing EIBF after cesarean birth requires maternity wards to integrate supportive practices into routine perioperative care. Strategies include ensuring immediate or very early skin-to-skin contact in the operating or recovery room with assistance from trained staff. Midwives and nurses can be specifically trained to facilitate breastfeeding within the first hour despite surgical constraints, while obstetric teams can prioritize timely transfer of stable mothers to post-operative units.

Place of delivery influenced breastfeeding practices: health posts were more favorable environments than hospitals, possibly due to their smaller size and individualized care. This trend contrasts with findings from Uganda, where hospital births increased the likelihood of EIBF [21]. In Nigeria, a survey showed that 40% of women who delivered in a facility attended by a healthcare professional initiated breastfeeding within the first hour, compared with fewer than 30% among those who gave birth elsewhere [14].

In the Senegalese context, this difference is partly attributable to the higher proportion of high-risk pregnancies requiring cesarean delivery in hospitals. In contrast, in health posts, healthcare personnel tend to be closer to patients, less overwhelmed, and therefore more available to support early breastfeeding initiation. Overall, our findings highlight the need to strengthen interventions promoting early breastfeeding across all levels of care. However, this study has some limitations that should be acknowledged. Recall bias may have influenced mothers' responses regarding timing of first breastfeeding, especially among those interviewed several weeks after delivery. The reliance on face-to-face interviews raises the possibility of social desirability bias, whereby mothers could overreport early initiation practices to align with perceived expectations. The study was conducted in a single urban health facility, which limits representativeness, findings may not fully capture the practices and challenges in rural settings where access to health person-

nel and delivery conditions differ substantially.

5. Conclusion

According to WHO recommendations, early initiation of breastfeeding improves neonatal survival and overall infant health. Nevertheless, medical, cultural, and sociodemographic barriers continue to limit its consistent practice. Promoting this practice broadly, raising community awareness, and integrating early breastfeeding into clinical care protocols remain essential. Healthcare facilities must also create optimal conditions to support this practice, regardless of the delivery context, ensuring universal access.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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