

Original Research Article

Exclusive breastfeeding practices among mothers delivering at a tertiary hospital in Antananarivo, Madagascar

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Received: 10 May 2026

Revised: 23 May 2026

Accepted: 25 May 2026

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ABSTRACT

Background: Exclusive breastfeeding (EBF) is a cost-effective intervention that significantly reduces infant morbidity and mortality. However, its practice remains suboptimal in many low- and middle-income countries. The aim of the study is to assess breastfeeding practices and maternal knowledge among mothers delivering at a tertiary hospital in Antananarivo, Madagascar.

Methods: A cross-sectional study was conducted from July to September 2024 at the maternity ward of the Centre Hospitalier de Soavinandriana. Mothers who initiated breastfeeding and consented to participate were enrolled. Data were collected at discharge and at one month postpartum. Statistical analyses were performed using Epi Info 7, with $p < 0.05$ considered significant.

Results: Among 106 mothers (mean age 29.3 ± 4.7 years), early initiation of breastfeeding within one hour occurred in 41.5%. Exclusive breastfeeding was reported in 61.3% at discharge and declined to 48.1% at one month. Formula feeding was introduced in 34.0% of cases, and 27.4% of infants received non-breast milk liquids. Factors significantly associated with EBF at one month included early initiation (63% vs 37%, $p < 0.001$), vaginal delivery (52% vs 48%, $p=0.03$), and receipt of breastfeeding counseling (58% vs 42%, $p=0.01$). Mother–infant separation was negatively associated with EBF (29% vs 71%, $p=0.002$). Although 60.4% of mothers received breastfeeding information, only 46% correctly identified the recommended duration of EBF.

Conclusions: Despite moderate breastfeeding initiation rates, EBF declined substantially within the first month. Strengthening early initiation, counseling, and postnatal support is essential to improve breastfeeding outcomes.

Keywords: Breastfeeding practices, Exclusive breastfeeding, Madagascar, Maternal knowledge, Neonatal nutrition

INTRODUCTION

Breastfeeding is universally recognized as the optimal source of nutrition for infants, providing essential nutrients and immunological protection necessary for growth and development. The World Health Organization (WHO) recommends initiating breastfeeding within the first hour after birth and maintaining exclusive breastfeeding (EBF)

for six months, followed by continued breastfeeding up to two years or beyond.¹ Despite these recommendations, adherence remains inadequate. Globally, EBF rates have reached 48% as of 2024.²

In Madagascar, only 54% of infants under six months receive EBF.³ Previous studies in Antananarivo have shown that although knowledge about breastfeeding is

relatively high, effective practice remains limited due to socio-economic and cultural factors.⁴

Understanding local practices is crucial to designing targeted interventions. At the Centre Hospitalier de Soavinandriana (CENHOSOA) in Madagascar, no recent data existed on current EBF practices. This study aimed to describe breastfeeding practices and evaluate maternal knowledge in a tertiary hospital setting in Antananarivo.

METHODS

Study design and setting

A descriptive cross-sectional study was conducted in the maternity ward of CENHOSOA, a tertiary hospital in Antananarivo, Madagascar.

Inclusion criteria

Postpartum women who delivered at the hospital, from July to September 2024, initiated breastfeeding, and agreed to participate were included.

Exclusion criteria

Women with contraindications to breastfeeding or who refused were excluded.

Data collection

Data were collected in two steps: at discharge using a structured face-to-face questionnaire and at 1 month postpartum by telephone follow-up. Information collected included socio-demographic data, obstetric history, breastfeeding practices, and maternal knowledge.

Statistical analysis

Data were analyzed using Epi Info 7. Associations were tested using Chi-square and Fisher’s exact tests. A p value <0.05 was considered significant. Verbal informed consent was obtained. Confidentiality and anonymity were respected.

RESULTS

Participant characteristics

A total of 106 mothers were included (Figure 1). The mean age was 29.3±4.7 years. Most participants lived in urban areas 75% (n=79) and had higher education levels 70% (n=74) (Table 1).

Obstetric history

Forty-three percent of the mothers (n=46) were primiparous. All participants had attended prenatal care, with 67% (n=71) receiving follow-up at the CENHOSOA

maternity unit. Regarding delivery, 69% (n=73) of mothers underwent vaginal delivery. Nine percent of the mothers (n=10) were separated from their newborns immediately after birth, primarily due to temporary admission to the neonatal unit.

The majority of infants were born at term (89%, n=94). The sex ratio was 1,46, and 84% (n=89) had a birth weight between 2500g and 4000g.

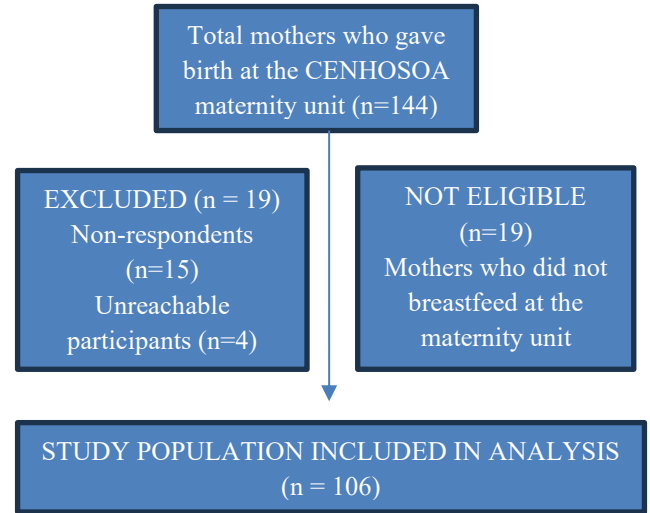


Figure 1: Study flow diagram.

Table 1: Participant characteristics.

Variables	Effectif (N)	Proportion (%)
Marital status		
In a relationship	101	95
Single	5	5
Living area		
Urban	79	75
Suburban	17	16
Rural	10	9
Education level		
Primary	2	2
Secondary	30	28
University	74	70

Breastfeeding practices

Among mothers with a history of previous pregnancy (n=60), the vast majority (97%, n=58) reported having breastfed their previous children, of whom 68% (n=39) had practiced exclusive breastfeeding (EBF).

With regard to current breastfeeding practices, early initiation of breastfeeding within the first hour after delivery was achieved in 33% of cases (n=35). On-demand breastfeeding was reported by 86% of mothers (n=91). However, a high proportion of participants (79%, n=84) introduced breast milk substitutes during their hospital stay. The main reasons reported for this supplementation

were perceived insufficient milk supply (42%) and delayed onset of lactogenesis (31%).

In terms of support, 42% of mothers received assistance from healthcare professionals, while familial support was reported by 16% and partner support by only 6%.

At hospital discharge, 59% of mothers (n=63) were exclusively breastfeeding. Table 2 presents the factors significantly associated with EBF at discharge. At one month postpartum, the prevalence of EBF was 61% (n=65), whereas 39% (n=41) of mothers practiced mixed feeding with infant formula. No statistically significant associations were identified between maternal or clinical characteristics and breastfeeding practices at one month.

Delivery-related complications are summarized in Figure 2.

Table 2: Factors associated with breastfeeding modality at discharge and one-month follow-up.

	At discharge	At 1 month
Maternal age	0.53	0.25
Marital status	0.32	0.64
Educational level	0.02	0.12
Parity	0.28	0.14
Mode of delivery	0.01	0.11
Early breastfeeding initiation	0.01	0.15
Breastfeeding support	0.52	0.29

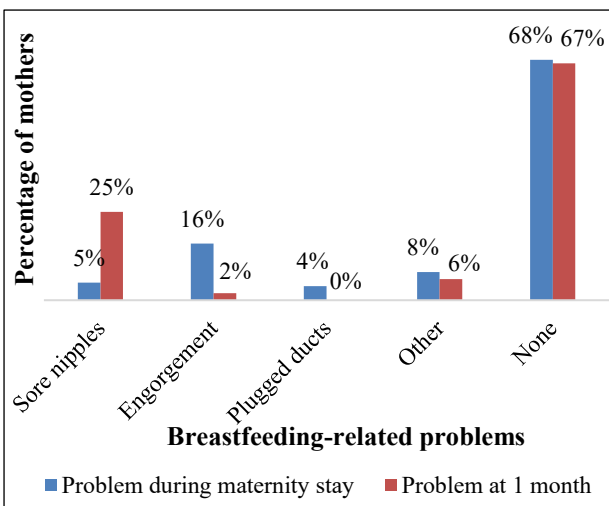


Figure 2: Breastfeeding-related problems.

Maternal knowledge

Furthermore, 64% of participants (n=60) reported having received education on breastfeeding. Among these, 54% (n=34) received information prior to pregnancy, 15% (n=23) during pregnancy, and 23% (n=15) postpartum at the maternity unit.

Regarding maternal knowledge, 68% of mothers (n=72) identified breast milk as beneficial for newborn health. However, 27% of participants were unaware of the benefits of breastfeeding for maternal health. Additional perceived benefits of breastfeeding for the newborn included its role in promoting optimal growth and development (47%, n=50), protection against diseases (18%, n=19), and enhancement of mother–infant bonding (32%, n=34).

DISCUSSION

This study provides important insights into breastfeeding practices, maternal knowledge, and associated factors among postpartum women in Antananarivo. At discharge from the maternity ward, the rate of exclusive breastfeeding (EBF) was 59%, while 41% of mothers practiced partial breastfeeding. These findings are consistent with previous studies. For instance, Kersuzan et al. reported that 59% of mothers practiced exclusive breastfeeding at maternity discharge, while Otmani et al found a slightly higher prevalence of 62.7%.^{5,6} This consistency suggests that early postpartum breastfeeding practices in our setting are comparable to those observed in other contexts.

In this study, 70% of mothers had a higher education level, which was significantly associated with the type of breastfeeding at discharge (p=0.02). This finding aligns with prior research conducted in France, where 78% of mothers had a higher education level, and maternal education was significantly associated with exclusive breastfeeding at discharge.⁵ Similarly, another study reported that 69% of mothers had a high level of education, which was positively associated with EBF practices.⁷ Overall, the literature consistently shows that higher maternal education is associated with increased likelihood of exclusive breastfeeding.⁸⁻¹⁰ This relationship may be explained by better access to health information, improved understanding of breastfeeding benefits, and greater autonomy in health-related decision-making among more educated mothers.

Early initiation of breastfeeding within the first hour after birth was observed in only 33% of cases, which remains suboptimal. However, this practice was significantly associated with the type of breastfeeding at discharge (p=0.01). Early initiation is known to stimulate lactogenesis and allows the newborn to benefit from colostrum, which is rich in proteins and immunological factors essential for protection against infections.¹¹ Moreover, early breastfeeding initiation has been associated with longer breastfeeding duration, while delayed initiation may increase the risk of early cessation.¹²

The continuation of breastfeeding is influenced by multiple factors. Positive maternal attitudes toward breastfeeding favor its maintenance, whereas early difficulties particularly during the first four weeks

postpartum can negatively affect breastfeeding continuation.¹³ In this study, at one month postpartum, 61% of mothers reported practicing exclusive breastfeeding, while 39% had introduced mixed feeding with infant formula. Interestingly, no specific factor was identified as significantly associated with breastfeeding continuation at this stage. This absence of association may be due to the relatively small sample size, unmeasured confounding factors, or the dynamic nature of breastfeeding practices during the early postpartum period.

Our findings at one month are comparable to those reported in Tunisia, where 55.6% of mothers exclusively breastfed their infants at one month.¹⁴ In contrast, markedly higher rates are observed in countries such as Norway, where nearly all mothers (98%) initiate breastfeeding, and more than 96% continue breastfeeding at one month, with only 10-15% practicing mixed feeding.¹⁵ These differences can largely be attributed to structural and contextual factors. Norway benefits from comprehensive breastfeeding support policies, including generous maternity leave, strong postnatal follow-up, and widespread public health promotion of breastfeeding. In addition, favorable cultural norms strongly support breastfeeding practices. Conversely, in settings with limited support, early return to work, and unresolved breastfeeding difficulties, the duration of exclusive breastfeeding may be reduced.

Although 64% of participants reported receiving breastfeeding education, the timing and content of this information varied considerably. Notably, only a minority received education during pregnancy, which is a critical period for shaping breastfeeding intentions and preparedness. While 68% of mothers recognized the benefits of breastfeeding for the newborn, more than one-quarter were unaware of its maternal health benefits. This knowledge gap has been reported in other studies and may limit mothers' motivation to sustain exclusive breastfeeding.¹⁶

Taken together, these findings highlight the need to strengthen breastfeeding promotion strategies. Education programs should be standardized, initiated early during antenatal care, and include comprehensive information addressing both infant and maternal benefits. In addition, targeted support during the early postpartum period is essential to address breastfeeding difficulties and improve continuation rates. Future research should explore additional determinants of breastfeeding practices, including psychosocial, cultural, and health system-related factors, to inform more effective interventions.

CONCLUSION

Exclusive breastfeeding rates in Antananarivo remain moderate at both maternity discharge and one month postpartum. Maternal education and early initiation of breastfeeding are key determinants of exclusive breastfeeding in the early postnatal period. However, gaps

in the timing and content of breastfeeding education, particularly during pregnancy, and limited awareness of maternal benefits may hinder optimal practices. Strengthening antenatal education and early postpartum support could improve exclusive breastfeeding rates in this setting.

ACKNOWLEDGEMENTS

Authors would like to thank all the mothers who participated in this study and the medical and paramedical staff of the Soavinandriana Hospital Center for their support during data collection. We are also grateful to the Faculty of Medicine, University of Antananarivo, and the University of Fianarantsoa for their academic support.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Tsifiregna RL, Andrianihanitra KSM, Ramamonjirina TP, Rakotomahefa NM, Andriamahavonjy R. Exclusive breastfeeding practices among mothers delivering at a tertiary hospital in Antananarivo, Madagascar. *Int J Res Med Sci* 2026;14:2306-10.