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Determinants of Exclusive Breastfeeding Duration: A Population-Based Study from Southern Portugal †

Flávia Oliveira [1,2,*] and Sónia Vicente [3]

[1] Unidade Local de Saúde do Algarve E.P.E., 8000-386 Faro, Portugal
[2] Alcoitão School of Health Sciences, 2649-506 Alcabideche, Portugal
[3] Egas Moniz Center for Interdisciplinary Research (CiiEM), Egas Moniz School of Health & Science, Caparica, 2829-511 Almada, Portugal; svicente@egasmoniz.edu.pt
* Correspondence: foliveira@ulsalg.min-saude.pt
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Abstract

Exclusive breastfeeding for the first six months is the gold standard in infant nutrition, yet rates in Europe remain below recommendations. This descriptive cross-sectional study identified maternal, perinatal and social determinants associated with shorter exclusive breastfeeding duration in the Algarve region. Statistically significant factors included in-hospital formula use, caesarean section, lack of skin-to-skin contact, and negative or absent previous experience of breastfeeding. In-hospital formula use and previous breastfeeding duration emerged as key predictors. These findings emphasise the importance of integrated strategies across the healthcare, workplace, and policy sectors, aligned with the lived experiences of women, to effectively support breastfeeding.

Keywords: exclusive breastfeeding; breastfeeding duration; breastfeeding support; maternal determinants; southern Portugal

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1. Introduction

Breast milk is a unique living food [1] that adapts to each baby's needs, providing complete nutrition for the first six months [2–4]. Exclusive breastfeeding (EBF) during this period is the global public health standard due to its proven benefits [5].

In the 20th century, breastfeeding (BF) rates declined, especially in industrialised countries [6], leading to global strategies such as the Global Breastfeeding Collective (GBC) [4]. Despite this, global BF rates remain below World Health Organization (WHO) and GBC targets [5,7], with several factors linked to shorter EBF duration [4,8–12]. Europe has the lowest rates of all WHO regions [13,14].

In Portugal, there is no published data on BF and its determinants in the Algarve region. This study aimed to determine the prevalence of and the factors influencing BF during the first six months of life in the Algarve region.

2. Materials and Methods

An observational, descriptive, and cross-sectional study is presented.

2.1. Participants and Recruitment

A total of 464 mothers of infants aged 6–24 months, residing in the Algarve, participated in the study. Inclusion criteria were literacy in Portuguese and informed consent. Medical contraindications to breastfeeding served as exclusion criteria.

Sample size was based on 5869 children registered at Algarve health centres, born between 1 July 2021 and 31 December 2022, with a 5% sampling error and 95% confidence level. Recruitment occurred via social media, day care and health centres, and maternal and child health professionals. Participation was voluntary and anonymous.

2.2. Data Collection

Data was collected between 1 July and 30 September 2023. A self-administered pretested online questionnaire was designed based on guidelines and the work of Caldeira et al. [15], and validated by a Delphi panel. The final questionnaire comprised 44 questions, all mandatory to prevent missing data.

2.3. Data Analysis

Data were analysed using SPSS v28.0. Independent sample t-tests assessed associations between EBF duration and parity, prenatal BF sessions, previous BF experience, formula use in hospital, skin-to-skin contact, smoking, partner support, and maternal education. Education level was recoded as primary/secondary vs. higher. Effect size was calculated using Cohen's d. Pearson's correlation assessed associations between EBF duration, maternal age, and prior BF duration. Welch's ANOVA tested the effect of birth type on EBF duration, with eta-squared as effect size and Games–Howell for post hoc comparisons. A multiple regression identified predictors of EBF duration. A p-value of <0.05 was considered significant.

3. Results

Of 503 responses, 464 were eligible (age 18–49, M = 33.99). Most had a partner (97.4%), were primiparous (55.2%), had high education (60.34%), received BF information during pregnancy (79.1%), and only 27.2% stayed home $\geq$6 months. Full-term births occurred in 95.3%, where 44.4% were caesarean. In the hospital, 85.3% of mothers initiated breastfeeding within the first hour after birth, 45.3% of infants were given formula (mainly via cup or bottle), and 76.9% experienced immediate skin-to-skin contact, with 43.9% lasting less than one hour. At discharge, 73.1% were EBF and common challenges reported during the first weeks included cracked nipples. (53.2%), pain (44%), and latch difficulties (28.4%). Family support was reported by 68.1%, especially from partners (87.9%). Reasons for stopping BF included perceived insufficient milk (31.2%), and latch issues (18.6%). Among multiparous women, 40.5% had prior BF experiences and 81.9% considered it positive. BF and EBF rates declined over time: at 15 days, 94% BF and 78.9% EBF; at 3 months, 85.1% and 69%; at 6 months, 74.4% and 38.1%.

Statistical analysis showed the following: small effect for parity [t = 2.213, p = 0.027, d = 0.205], prenatal BF sessions [t = 2.089, p = 0.038, d = 0.209], prior BF experience [t = 2.555, p = 0.011, d = 0.237], education [t = 2.558, p = 0.011, d = 0.243], duration of previous BF [R = 0.269, $p \leq 0.01$], moderate effects for quality (positive/negative) of prior BF [t = 3.290, $p < 0.001$, d = 0.679], skin-to-skin contact [t = 3.811, $p < 0.001$, d = 0.449], and large effect for use of formula in hospital [t = −9.698, $p < 0.001$, d = 0.938]. Vaginal births were associated with longer EBF than caesarean [Mean Difference = 32.57, $p < 0.001$] [Fw (2, 149.746) = 10.040, $p < 0.001$, $\eta^2 = 0.043$]. Multiple regression identified formula use in hospital (Beta = 0.373, $p < 0.001$) and previous BF duration (Beta = 0.213, p = 0.002) as significant predictors. No significant associations were found for age, smoking, or partner support.

4. Discussion

The study's findings of 38.1% EBF rate at six months is significantly below the GBC 2030 target. This decline from 59.5% at five months may be linked to shorter parental leave (72.8% of the sample) and early complementary feeding due to childcare arrangements. The current paid parental leave policy in Portugal may pose a barrier to the EBF continuation for six months. Additionally, inadequate workplace support contributes to early formula introduction [4]. Although the WHO recommends six months of EBF, the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition suggests introducing complementary feeding between four and six months [16], leading to inconsistent advice that may impact EBF duration.

Caesareans (44.4%) were linked to shorter EBF duration, reduced early skin-to-skin contact, and delayed BF initiation. Nearly half of caesarean mothers missed early contact, which contributed to missed early BF opportunities. Only 42.8% had skin-to-skin contact lasting at least one hour, despite its known benefits [17].

In-hospital formula use, found in 45.3% of infants, was associated with shorter EBF duration, likely influenced by high caesarean rates and staff limitations. The WHO and UNICEF stress that formula should only be introduced when necessary, yet early supplementation disrupts BF [18], potentially causing nipple trauma, pain, and latch issues in 53.2%, 44%, and 28.4% of mothers, respectively. Limited postnatal support, reported by only 34.5% of mothers, may exacerbate these challenges.

Nearly half of participants (49.8%) had ceased BF, with the primary reason being perceived insufficient milk, echoing national trends [19]. This highlights the need for better support and education to address misconceptions about milk supply.

Frequency of BF sessions during pregnancy was positively associated with longer EBF duration. This education helps women manage challenges in the early and later stages of BF. Family-centred interventions, targeting both mothers and partners, are essential for overcoming social and environmental barriers to BF [4,8,20].

Although partner support was not significantly associated with EBF duration, the literature suggests that active involvement enhances BF success [6,21]. Despite 87.9% reporting partner support, variations in perceived support may explain the lack of significance. Further research on partner roles, especially in same-gender partnerships, is needed to refine intervention strategies.

Prior BF experience positively influenced subsequent EBF, confirming the study's findings. Experienced mothers often exhibit greater confidence and motivation to continue BF, while inexperienced mothers are more affected by sociocultural factors [10].

Convenience sampling limits representativeness and recall bias is possible due to retrospective questions. To minimise bias, the questionnaire was kept concise and focused on relevant items.

5. Conclusions

The study highlights that parental leave, hospital practices, and maternal perceptions significantly impact breastfeeding outcomes. The six month EBF rate remains below WHO targets, reflecting national trends. Improving outcomes requires stronger institutional support, better healthcare training, more baby-friendly facilities, community breastfeeding spaces, and increased public awareness. Aligning policies with mothers' real-life experiences is key to fostering supportive environments for breastfeeding.

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Abbreviations

The following abbreviations are used in this manuscript:

EBF	Exclusive breastfeeding
BF	Breastfeeding
WHO	World Health Organization
GBC	Global Breastfeeding Collective

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