

## Full Length Article

## The association between exclusive breastfeeding and quality of care and maternal factors in a tertiary maternity hospital in Finland: A cross-sectional study

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## ABSTRACT

**Background:** Mothers' perceptions of high-quality hospital care may improve breastfeeding outcomes, yet postnatal care in hospitals is often rated poorly by mothers, highlighting the need to focus on the quality and maternal perceptions of care, not just its provision. Fewer women exclusively breastfeed than intend to. The aim was to examine the association between exclusive breastfeeding, quality of care, and maternal factors based on maternal reports.

**Methods:** A cross-sectional study was conducted at a Finnish maternity hospital in 2022–2023. Data were collected through an online survey of mothers within 12 weeks of childbirth. Quality of care was measured by childbirth satisfaction, early breastfeeding initiation, family-centered care, maternal satisfaction with postnatal care, and breastfeeding support. Binary logistic regression analyzed associations between exclusive breastfeeding, quality of care, and maternal factors.

**Findings:** A total of  $n = 160$  mothers participated. Lack of early breastfeeding initiation (OR 2.20,  $p = 0.05$ ), inadequate breastfeeding support (OR 2.05,  $p = 0.05$ ), lower family-centered care quality (OR 2.14,  $p = 0.04$ ), primiparity (OR 2.94,  $p < 0.001$ ), antenatal non-exclusive breastfeeding plan (OR 6.44,  $p < 0.0001$ ), and lower parenting self-efficacy (OR 4.98,  $p < 0.0001$ ) were associated with non-exclusive breastfeeding. The most significant predictor of non-exclusive breastfeeding was a lack of antenatal breastfeeding plan (OR 6.22) combined with lower parenting self-efficacy (OR 4.81).

**Conclusion:** Early breastfeeding initiation, support, and family-centered care were initially associated with breastfeeding outcomes; however, only the maternal factors—absence of antenatal breastfeeding plans and lower parenting self-efficacy—remained significantly associated with non-exclusive breastfeeding.

## Introduction

High-quality postnatal care in maternity hospitals is essential to ensure maternal and newborn health and well-being [1]. Successful breastfeeding is a key outcome of quality care. However, postnatal care is a complex concept [1], and standardized measures to assess its quality are still lacking [2]. WHO recommendations emphasize not only evidence-based clinical care but also the importance of respectful,

woman- and family-centered care, offering comprehensive frameworks that define quality during the perinatal period. These guidelines highlight key elements such as effective communication, emotional support, informed decision-making, and family involvement, all aimed at improving maternal and newborn health outcomes [3,4]. Examining mothers' experiences and perceptions of care is crucial for monitoring and improving quality [1]. Yet, postnatal care in maternity hospitals is often rated poorly by mothers compared to other areas of maternity care

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[5], indicating a need to shift the focus from the mere provision of care to the quality of care and how it is experienced by mothers [1].

Quality measures of postnatal care should cover the period from birth to hospital discharge, as all aspects may impact breastfeeding. For example, maternal satisfaction with the birth experience should be considered an important determinant of exclusive breastfeeding, although this has not been extensively studied [6]. The first days after birth are critical for the successful initiation and continuation of breastfeeding. Early initiation facilitates breast milk production and lactogenesis, providing a crucial start for effective breastfeeding and optimal mother-infant bonding [7]. Mothers should also receive practical assistance to establish and maintain breastfeeding and to manage common challenges [8].

Breastfeeding support is a key component of postnatal care and involves providing mothers with information, practical assistance, emotional reassurance, and encouragement. Timely and effective support is essential for mothers to successfully breastfeed their infants [8]. Inadequate breastfeeding support in hospitals can lead to early challenges, such as perceived low milk supply, which may result in the unnecessary introduction of non-medically indicated supplemental feeding and hinder exclusive breastfeeding [9]. Healthcare professionals and hospital practices play a crucial role in fostering a supportive environment for parenting, enhancing parental self-efficacy [10], and promoting optimal infant feeding.

Families are being discharged home earlier than ever before, as the length of stay in maternity hospitals has decreased [11]. Short hospital stays can potentially compromise the quality of care and further challenge exclusive breastfeeding. In Finland, while almost all mothers initiate breastfeeding, 55 % of infants receive supplementation in hospital, and only 54 % are exclusively breastfed at two months of age [12]. Previous studies have primarily focused on individual factors such as maternal education and breastfeeding knowledge [13]. However, the interaction between these factors and the perceived quality of care remains underexplored. A more comprehensive analysis of care quality—and its relationship to exclusive breastfeeding—is needed to inform effective support strategies.

The study is informed by the WHO Quality of Maternal and Newborn Care Framework [14], which emphasizes both the provision and experience of care. Guided by this framework, the study aims to examine how perceived quality of postnatal care and maternal factors are associated with exclusive breastfeeding outcomes.

## Materials and methods

### Study design

We conducted a cross-sectional survey of postpartum mothers who had delivered within the past twelve weeks, following the STROBE reporting guideline for cross-sectional studies [15]. This study is part of a broader research project exploring postpartum mothers' perceptions and experiences of perinatal care in public maternal-child health clinics and a maternity hospital in Finland. The project was carried out collaboratively by the city providing public maternity health services and the tertiary maternity hospital.

### Setting

Participating mothers gave birth at a tertiary-level birth hospital with approximately 8200 annual deliveries, accounting for 18.5 % of all births (45,186) in Finland in 2022. The hospital provides care for both low- and high-risk pregnancies and includes a level III neonatal intensive care unit (NICU). It has two postnatal units and a patient hotel unit for low-risk mother-infant dyads, with a total of 79 beds. Some rooms are designated as family rooms, allowing the mother's support person (often the partner) to stay. The average postnatal hospital stay is two days.

Post-operative care following cesarean section or other postpartum

surgeries is provided in two units. One is a family unit where the mother and baby are cared for together, facilitating skin-to-skin contact (SSC) and breastfeeding. The other unit provides care for the mother only, resulting in dyad separation, typically for at least two hours.

The hospital's breastfeeding support policy aligns with the International Code of Marketing of Breastmilk Substitutes (the Code). Although not accredited as a Baby-Friendly Hospital (BFHI), the hospital follows many BFHI practices (Ten Steps), including early SSC and breastfeeding initiation, promotion of exclusive breastfeeding, rooming-in, feeding on demand, and avoiding bottles and pacifiers. Postnatal care is provided by midwives and nurses, supported by licensed practical nurses. In addition to regular room visits, some breastfeeding support is offered during scheduled visits to the staff office.

All midwives and nurses have completed the WHO/UNICEF 20-hour breastfeeding counselor course. Postnatal breastfeeding support includes written and oral information, as well as practical and emotional assistance. In the hotel unit, routine care is supplemented with interactive tablets that allow mothers to watch breastfeeding videos and request help from staff. Mothers are encouraged to breastfeed exclusively and to introduce supplemental milk only for medical reasons, although non-medical supplementation at the mother's request is also permitted.

Beyond hospital care, antenatal care in Finland is provided to all pregnant women through publicly funded maternal-child health clinics. During antenatal visits, women receive breastfeeding support, including both written and oral information.

### Participants

Convenience sampling was used to recruit postpartum mothers who met the following inclusion criteria:

- 1) The mother gave birth to one or more infants at term (gestational age  $\geq 37$  weeks) in the selected hospital and received care at a public maternal-child health clinic in the area.
- 2) The mother was discharged from the hospital together with the infant.

Minors (<18 years) and mothers who did not have sufficient proficiency in Finnish, Swedish, or English were excluded.

Postpartum mothers were recruited by midwives in the postnatal units and public health nurses (PHNs) in child health clinics, up to 12 weeks after birth. The sample size was determined through a power analysis conducted prior to data collection using the Birth Satisfaction Scale-Revised (BSS-R) instrument. A total of  $N = 139$  participants was identified as the minimum sample size required to ensure 80 % power to detect a medium effect size at a significance level of  $\alpha = 0.05$ . To meet this requirement, 160 mothers were enrolled in the study.

### Measurements

An online, self-administered survey was developed specifically for this study. The survey included a series of background questions on various maternal factors, including sociodemographic status, obstetric characteristics, and self-rated parenting self-efficacy (PSE). PSE was measured using the Parenting Self-Efficacy Scale [12], which consists of 27 items assessing cognitive (11 items), affective (7 items), and behavioral (9 items) aspects of infant care. Responses are rated on a 6-point Likert scale (1 = "strongly disagree" to 6 = "strongly agree"). A mean score is calculated, with higher scores indicating greater PSE. The scale has previously been used among Finnish-speaking populations and has demonstrated high internal consistency reliability (Cronbach's  $\alpha = 0.91\text{--}0.96$ ) [16,17]. Quality of care was assessed through measures of maternal satisfaction with labor and birth, early initiation of breastfeeding, family-centered care (FCC), maternal satisfaction with postnatal care, and the adequacy of breastfeeding support.

Maternal satisfaction with labor and birth was measured using the Birth Satisfaction Scale-Revised (BSS-R) [18]. This instrument includes 10 items rated on a 5-point Likert scale (0–4) and comprises three subscales:

- 1) Quality of care provision (4 items)
- 2) Women’s personal attributes (2 items)
- 3) Stress experienced during labor (4 items)

The scale includes four reverse-scored items, which are adjusted when calculating the total score. A mean score is computed, with higher scores indicating greater birth satisfaction. The BSS-R has been validated as a reliable, multidimensional measure of satisfaction with the birth experience across various populations, with Cronbach’s alpha values ranging from 0.77 to 0.79 for the total scale [18,19]. For this study, the instrument was translated into Finnish using a forward–back translation method [20], with minor wording adjustments for cultural adaptation.

Maternal perceptions of the quality of family-centered care (FCC) were measured using the Digi Family-Centered Care: Parent (DigiFCC-P) instrument [21]. Originally developed to assess FCC in neonatal intensive care settings, the instrument was modified for this study to evaluate perceived FCC quality in postnatal units. It consists of nine items rated on a 7-point scale (1 = low quality to 7 = high quality), covering the following domains: active listening by staff, parent participation in infant care, individualized parent education by staff, participation in decision-making, trust in staff regarding infant care, participation in medical rounds and decisions, information received from staff, and emotional support provided by staff [18]. A mean score is calculated by summing the item scores and dividing by the number of items, with higher scores indicating higher perceived FCC quality. The DigiFCC-P has been used in international NICU surveys [22,23] and has demonstrated good reliability [21]. For this study, the wording was adapted to reflect the postnatal care context: the term “staff” was replaced with “midwives,” and references to the “postnatal ward” were added. No other modifications were made.

Three structured questions were used to measure early initiation of breastfeeding, maternal satisfaction with postnatal care, and the adequacy of breastfeeding support (Table 1). Early initiation of breastfeeding was defined as the mother making at least one attempt to breastfeed her infant in the delivery, operative, or post-operative room. This definition includes any effort to initiate breastfeeding immediately after birth, regardless of whether the attempt was fully successful or sustained. Typically, the time spent in the delivery or post-operative room is a minimum of two hours postpartum.

Breastfeeding status was measured using a single structured question: “Are you breastfeeding?” with the following response options: 1) Yes, exclusively, 2) Yes, partially, and 3) No. This question referred to the mother’s current breastfeeding status at the time of the survey. The national definition of exclusive breastfeeding was applied [24], meaning that exclusive breastfeeding was considered only when the infant

received solely the mother’s own breast milk—either directly from the breast, by hand expression, or by pumping—with no other liquids or solid foods, except for vitamin D or oral medications.

*Data collection*

Data were collected between October 2022 and January 2023, continuing until a total of n = 160 mothers were recruited. The survey was available in three languages: Finnish, Swedish, and English. Data collection and storage were managed using REDCap (Research Electronic Data Capture). Mothers received both oral and written information about the study from midwives and nurses at the hospital and at maternal and child health clinics in the region. A REDCap survey invitation was distributed via printed handouts or sent through a digital patient and client portal. Mothers had the option to contact the research team with any additional questions. Prior to participation, informed consent was obtained at the start of the survey. Access to the survey was granted only to those who agreed to participate. Participation was voluntary, and mothers could withdraw at any time.

*Data analysis*

Counts (n) and percentages were used to describe categorical variables. Due to skewed distributions, infant gestational age and the length of postnatal hospital stay were summarized using the median and interquartile range (IQR), reported as the lower (Q1) and upper (Q3) quartiles.

Binary logistic regression models were used to examine whether non-exclusive breastfeeding was associated with quality of care and maternal factors, including age, parity, marital status, education, perceived economic status, antenatal breastfeeding plans, labor onset, type of birth, length of hospital stay, and parenting self-efficacy (PSE). To improve the interpretability of odds ratios, continuous variables were discretized and categorized using median values. Initially, univariate analyses were conducted to identify significant factors. Six variables were found to be statistically significant: parity, antenatal plans to breastfeed exclusively, early initiation of breastfeeding, perceived adequacy of breastfeeding support, maternal perception of the quality of FCC, and PSE. To assess potential collinearity, associations among these six significant factors were examined.

Parity was found to be associated with antenatal plans for exclusive breastfeeding, early initiation of breastfeeding, and parenting self-efficacy (PSE), while maternal perception of family-centered care (FCC) was associated with PSE. Multivariable models were developed using non-collinear factors, with model selection guided by the Akaike Information Criterion (AIC) and the likelihood ratio test.

The final model for non-exclusive breastfeeding included two statistically significant predictors: antenatal breastfeeding plan and PSE. All statistical tests were two-sided, with a significance level set at p ≤ 0.05, which was considered statistically significant. Analyses were performed using SAS (Version 9.4) for Windows. The figure was created in R (Version 4.2.1) using the forestplot package.

*Ethical considerations*

The study obtained ethical approval from the HUS Regional Committee on Medical Research Ethics on September 14th, 2022 (statement 14534/2022) and was approved by the City of Helsinki on September 21st, 2022 (HEL 2022-010867 T 13 02 01).

**Results**

*Background characteristics of mothers*

A total of 160 mothers completed the survey, median 17 days (IQR 28) after childbirth. The mean age of the mothers was 33.5 years (SD

**Table 1**  
Survey items measuring early initiation of breastfeeding, maternal satisfaction with postnatal care, and adequacy of breastfeeding support.

Outcome	Question	Response scale
Early initiation of breastfeeding	Did you attempt early initiation of breastfeeding in the delivery, operative or post-operative room?	1) Yes, at least breastfeeding was attempted 2) No
Maternal satisfaction with postnatal care	How satisfied were you with postnatal care?	(not satisfied) 1 – 10 (very satisfied)
Adequacy of breastfeeding support	Did the health care professionals provide you with adequate support for breastfeeding during your stay in the postnatal unit?	1) Yes 2) No

4.4). Most mothers (86.3 %) were well educated and had a good or very good economic status (87.4 %). Nearly all mothers (95.6 %) had made some plans to breastfeed, and many (71.3 %) had made plans for exclusive breastfeeding (Table 2). Most mothers were primiparous (59.4 %) and had spontaneous onset of labor (61.8 %) and vaginal delivery (79.4 %). The median length of postnatal hospital stay was two days. Mothers rated their PSE with a mean score of 5.0 (SD 0.7) (Table 3). A total of nine mothers (5.6 %) completed the survey in a language other than Finnish: English (3.1 %, n = 5) or Swedish (2.5 %, n = 4).

*Quality of care measures*

The mean score for birth satisfaction was 2.8 (SD 0.8). 75.6 % of mothers reported early initiation of breastfeeding. 50 % of the mothers reported adequate breastfeeding support in the postnatal units. The mean score for the quality of FCC was 5.5 (SD 1.2), and the mean score for maternal satisfaction with postnatal care was 6.8 (SD 2.9) (Table 4).

*Quality of care measures and maternal factors associated with exclusive breastfeeding*

A total of n = 100/147 (68.0 %) exclusively breastfed their infants at the time of survey completion. Among the participants, the proportion of infants who were not breastfed at all was small (3.4 %, n = 5). Consequently, these infants were combined with those who were partially breastfed (28.6 %, n = 42) to form the non-exclusive breastfeeding group for subsequent analyses. Univariate analysis identified three different quality measures were significantly associated with exclusive breastfeeding: early initiation of breastfeeding, adequate breastfeeding support, and quality of FCC. Mothers who did not experience early initiation of breastfeeding (OR 2.20, 95 % CI 1.01, 4.82, p = 0.05), mothers who perceived inadequate breastfeeding support (OR 2.05, 95 % CI 1.01, 4.16, p = 0.05), and lower quality of FCC (OR 2.14, 95 % CI 1.05, 4.34, p = 0.04) were more likely than others to not exclusively breastfeed their infant. Of the maternal factors, primiparous mothers (OR 2.94, 95 % CI 1.34, 6.43, p < 0.001), mothers who did not plan to breastfeed exclusively (OR 6.44, 95 % CI 2.91, 14.24, p < 0.0001), and mothers who rated their PSE lower (OR 4.98, 95 % CI 2.36, 10.51, p < 0.0001) were more likely to not exclusively breastfeed than others (Fig. 1).

**Table 2**  
Sociodemographic and antenatal characteristics of the participating mothers.

Variable	n (%)
<b>Maternal age (year), mean (SD) (n = 156)</b>	33.5 (4.4)
≥ 35 years	64 (41.0)
<b>Marital status (n = 159)</b>	
Married/partner	152 (95.6)
<b>Education (n = 160)</b>	
University degree	138 (86.3)
<b>Perceived economic status (n = 159)</b>	
Good/very good	139 (87.4)
<b>Planned pregnancy (n = 160)</b>	
Yes	146 (91.3)
<b>Smoking during pregnancy (n = 159)</b>	
No	158 (98.8)
<b>Use of antidepressants during pregnancy (n = 160)</b>	
Yes	8 (5.0)
<b>Treatment to fear of childbirth (n = 160)</b>	
Yes	27 (16.9)
<b>Breastfeeding plans during pregnancy (n = 160)</b>	
The mother had not made any specific plans regarding BF	7 (4.4)
Planned to at least try BF	21 (13.1)
Planned partial BF	18 (11.3)
Planned exclusive BF	114 (71.3)

BF Breastfeeding.  
SD standard deviation.

**Table 3**  
Obstetric and postnatal characteristics.

Variable	n (%)
<b>Parity (n = 159)</b>	
Primipara	95 (59.4)
<b>Labor onset (n = 152)</b>	
Spontaneous	94 (61.8)
Induced	58 (38.2)
<b>Mode of delivery (n = 155)</b>	
Vaginal	123 (79.4)
Cesarean section	32 (20.6)
<b>Type of cesarean section (n = 32)</b>	
Planned	16 (50.0)
<b>Post-operative care unit after cesarean section (n = 32)</b>	
Family unit	17 (53.1)
<b>Number of newborns (n = 155)</b>	
One	153 (98.7)
<b>Infant's gestational age (weeks)</b>	
Median (Q1-Q3) (n = 148)	40 (39 – 40)
<b>Length of hospital stay (days)</b>	
Median (Q1-Q3) (n = 142)	2 (2 – 5)
<b>Parenting self-efficacy (PSE)</b>	
Mean (SD) (scale 1 – 6) (n = 158)	
Subscales:	
Cognitive skills	5.0 (0.8)
Affective skills	4.7 (0.8)
Behavioural skills	5.2 (0.7)
Total	5.0 (0.7)

Q1-Q3 Interquartile range (25th–75th percentile).  
SD standard deviation.

**Table 4**  
Quality of care measures.

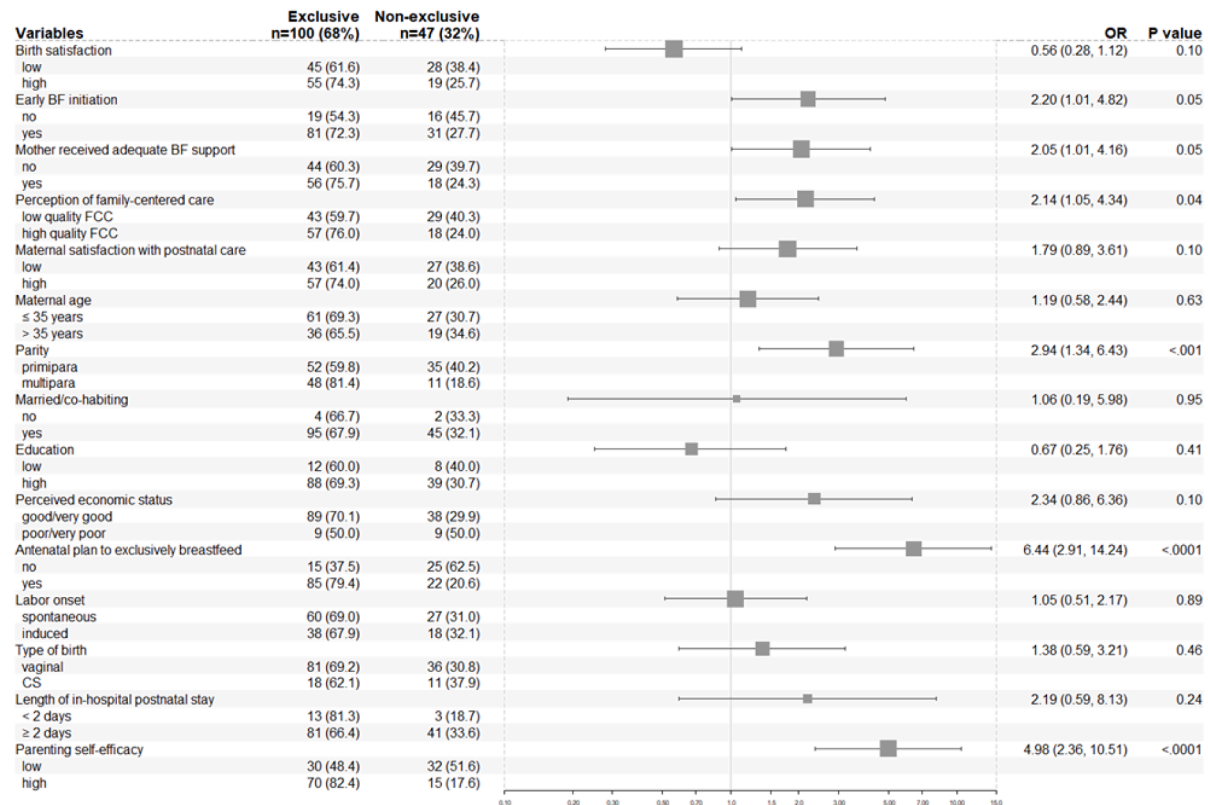
Variable	Mean (SD) or n (%)
<b>Birth satisfaction (BSS-R)</b>	
Mean (SD) (scale 0 – 4)	
Subscales:	
Quality of care provision	3.3 (0.8)
Women's personal attributes	2.6 (1.1)
Stress experienced during labour	2.4 (1.0)
Total	2.8 (0.8)
<b>Early initiation of breastfeeding (n, %)</b>	
Yes	118 (75.6)
<b>Adequate breastfeeding support (n, %)</b>	
Yes	76 (50.0)
<b>Family-centered care (DigiFCC-P)</b>	
Mean (SD) (scale 1 – 7)	5.5 (1.2)
<b>Maternal satisfaction with postnatal care</b>	
Mean (SD) (scale 1 – 10)	6.8 (2.9)

SD standard deviation.

The model-building process leading to the final multivariable model is presented in Supplementary Table S1. In the final multivariable model, the combination of antenatal breastfeeding plan and PSE was the most significant predictor of non-exclusive breastfeeding. When considering both factors simultaneously, mothers who had not planned exclusive breastfeeding had a 6.22 times higher risk of non-exclusive breastfeeding compared to those who did. Similarly, mothers who rated their PSE lower had a 4.81 times higher risk of non-exclusive breastfeeding compared to those with higher ratings.

**Discussion**

This study examined the association between exclusive breastfeeding and both maternal factors and perceived quality of care. The findings indicate that although elements of care quality were initially associated with breastfeeding outcomes, only maternal factors—specifically the absence of an antenatal breastfeeding plan and lower perceived self-efficacy (PSE)—remained significant predictors. These results suggest that maternal readiness and confidence may exert a greater influence on



BF Breastfeeding  
 CS Cesarean section  
 OR Odds ratio  
 p\*0.05

Fig. 1. Quality of care measures and maternal factors associated with breastfeeding exclusivity (non-exclusive breastfeeding as reference group).

breastfeeding than perceived quality of care alone.

While this study did not directly assess breastfeeding intentions, it examined antenatal breastfeeding plans—a closely related factor. These plans were found to support breastfeeding and should be actively encouraged. This aligns with prior research showing that antenatal intention predicts both initiation and duration of breastfeeding [25]. Notably, breastfeeding intentions are also linked to better infant health outcomes, possibly due to greater awareness of nutritional guidelines and access to relevant information. These findings highlight the need to improve maternal health literacy, especially among those not planning to breastfeed [26].

Lower parenting self-efficacy (PSE) was significantly associated with non-exclusive breastfeeding, consistent with earlier research [10]. Mothers with higher PSE are more likely to seek support, manage challenges, and feel confident about milk supply—factors that help sustain breastfeeding [9]. In this study, higher PSE also correlated with more positive perceptions of family-centered care (FCC), suggesting a link between maternal confidence and perceived care quality. Mothers who rated FCC poorly were less likely to exclusively breastfeed. Hospital counseling, practices, and environment may influence PSE [10], and FCC has been associated with lower parental depression and greater satisfaction [22,27]. FCC is particularly important for first-time mothers, who in this study were less likely to exclusively breastfeed. Prior research shows they face more challenges and are more likely to receive in-hospital supplementation than experienced mothers [9,12].

Strengthening parenting self-efficacy (PSE) is a vital part of high-quality postnatal care to support breastfeeding. Midwife-led continuity of care (MCoC) models may be especially effective, offering consistent, personalized support across pregnancy, birth, and postpartum [28].

These models can build maternal confidence, encourage antenatal breastfeeding plans, and promote family-centered care although evidence on their impact on breastfeeding duration remains unclear [29]. Finland’s maternity and child health clinic system offers a strong foundation for expanding midwife-led continuity of care [30]. Piloting caseload or group midwifery models where a primary midwife or small team supports each mother from pregnancy through postpartum could enhance care continuity, strengthen collaboration across care settings, and improve parenting self-efficacy and postnatal outcomes [28].

Many mothers expressed dissatisfaction with the breastfeeding support received in the postnatal ward, which was associated with lower rates of exclusive breastfeeding. This aligns with previous findings that highlight common issues such as conflicting advice, rushed care, and a lack of individualized support [5]. Inconsistent support is often linked to variations in healthcare professionals’ breastfeeding knowledge, skills, and attitudes, as well as staffing shortages and limited resources [1,5,8]. To address these challenges, the Academy of Breastfeeding Medicine (ABM) advocates for comprehensive support based on the Baby-Friendly Hospital Initiative (BFHI), a widely recognized model for improving maternity care and breastfeeding outcomes [31].

The ABM protocol aligns with the BFHI Global Criteria, particularly Step 2, which emphasizes verified staff competencies. The globally validated BFHI Toolkit supports this goal by promoting timely, skilled care, which has been shown to enhance maternal confidence and support continued breastfeeding after discharge [32]. Integrating the WHO Quality of Maternal and Newborn Care Framework into routine monitoring could further strengthen these efforts by offering a structured approach to evaluating care experiences from the maternal perspective. This framework can help identify gaps in support, guide staff training,

and inform quality improvement initiatives—particularly in high-income settings where technical care is already of high quality but emotional and family-centered support remains inconsistent.

The findings of this study reveal that quality of care did not significantly impact breastfeeding outcomes after controlling for other factors. While quality of care remains important, breastfeeding is a multifaceted behavior influenced by psychological, social, and environmental factors. Research indicates that maternal self-efficacy, personality traits, cultural and socioeconomic status, and beliefs about infant behavior all play a role in breastfeeding initiation and duration. Therefore, effective support must address this complexity through integrated antenatal and postnatal education and personalized care to improve breastfeeding outcomes [8,33].

### Strengths and limitations

To the best of our knowledge, this is the first study to report on the quality of maternity hospital care using the selected quality indicators and to examine their association with breastfeeding exclusivity, highlighting the novelty of the research. A key strength of the study is its comprehensive assessment of care quality, with a particular focus on the maternal perspective—an important dimension, as maternal satisfaction is widely recognized as a critical measure of quality. The use of validated instruments enhances the credibility of the findings, although it should be noted that the translated versions of these instruments had not undergone formal validation.

A key limitation of this study is the small and potentially biased sample, which consisted predominantly of well-educated mothers with good economic status. This demographic may be associated with higher rates of exclusive breastfeeding and a more critical perspective on care quality. Additionally, the use of convenience sampling limits the generalizability of the findings, as the sample may not be representative of the broader population. This approach may have introduced selection bias, reducing the applicability of the results to more diverse groups. The exclusion of mothers with insufficient language skills further limits the study, as it excluded immigrant mothers—an important yet often underrepresented population. Moreover, participants completed the survey at varying points in the postnatal period, which may have affected the accuracy of responses, as experiences and care received after hospital discharge could influence breastfeeding behavior. Finally, the reliance on self-reported data introduces the potential for recall bias.

One limitation of this study is that, although mothers were asked about their antenatal breastfeeding plans, the study did not directly assess their breastfeeding intentions or actual breastfeeding practices during the hospital stay. This lack of detailed data on in-hospital breastfeeding behavior limits the interpretation of breastfeeding-related outcomes. However, national data from Finland indicate that nearly all new mothers initiate breastfeeding [12], suggesting that a similar pattern is likely within our sample. Additionally, the study did not employ a standardized or rigorous definition of early initiation of breastfeeding. Instead, early initiation was defined as any breastfeeding attempt occurring while the mother remained in the delivery, operating, or post-operative room—typically within the first two hours postpartum. This may affect the validity of the findings, as it was not possible to confirm whether breastfeeding was initiated within the first hour, as recommended by the WHO. Nonetheless, the high rate of early initiation observed is consistent with findings from previous research [34].

### Conclusions

Although care quality factors such as early breastfeeding initiation, support, and family-centered care initially showed associations with breastfeeding outcomes, only the absence of antenatal breastfeeding plans and lower parenting self-efficacy remained significant predictors of non-exclusive breastfeeding. These findings suggest that support strategies aimed at encouraging antenatal planning for breastfeeding

and strengthening maternal self-efficacy may be particularly effective in improving exclusive breastfeeding rates.

### Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author(s) used DeepL Write in order to improve language and readability. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

### CRedit authorship contribution statement

**Jaana Lojander:** Writing – original draft, Visualization, Formal analysis, Data curation, Conceptualization. **Anna Axelin:** Writing – review & editing, Supervision, Project administration, Methodology, Investigation, Conceptualization. **Aydin Tekay:** Writing – review & editing, Conceptualization. **Seppo Heinonen:** Writing – review & editing, Conceptualization. **Satu Polkko:** Writing – review & editing, Conceptualization. **Laura Lehti:** Writing – review & editing, Conceptualization. **Terhi Kolari:** Writing – review & editing, Formal analysis. **Hannakaisa Niela-Vilén:** Writing – review & editing, Supervision, Project administration, Methodology, Investigation, Conceptualization.

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### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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### Ethical considerations

The study obtained ethical approval from the Helsinki and Uusimaa Hospital District Ethics Committee on September 14<sup>th</sup>, 2022 (statement 14534/2022) and was approved by the City of Helsinki on September 21<sup>st</sup>, 2022 (ref. HEL 2022-010867T 13 02 01).

### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.srhc.2025.101127>.

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