Article

Not peer-reviewed version

Exclusive Breastfeeding Rates at Hospital Discharge Across the Robson Ten-Group Classification System: A Retrospective Study

Rafael Vila-Candel , Anna Martin-Arribas * , Joaquin Mateu-Mollá , Fatima Leon-Larios , Desirée Mena-Tudela

Posted Date: 29 September 2025

doi: 10.20944/preprints202509.2455.v1

Keywords: caesarean section; Robson classification; perinatal outcomes; exclusive breastfeeding; cross-sectional study

Article

Exclusive Breastfeeding Rates at Hospital Discharge Across the Robson Ten-Group Classification System: A Retrospective Study

Rafael Vila-Candel [1,2], Anna Martin-Arribas [3,*], Joaquín Mateu-Mollá [2], Fátima León Larios [4] and Desirée Mena-Tudela [5]

[1] La Ribera Health Department, Foundation for the Promotion of Health and Biomedical Research in the Valencian Region (FISABIO), 46020 Valencia, Spain
[2] Faculty of Health Sciences, Valencian International University (VIU), Pintor Sorolla 2, 46002 Valencia, Spain
[3] School of Health Sciences Blanquerna, Universitat Ramon Llull, Carrer Padilla 326, 08025 Barcelona, Spain
[4] Nursing Department. Faculty of Nursing, Physiotherapy and Podiatry, University of Seville, Avenzoar, 6, 41009 Seville, Spain
[5] Nursing Department, Faculty of Health Sciences. Feminist Institute. Universitat Jaume I, Avda. Sos I Baynat s/n, 12071 Castellón, Spain
* Correspondence: annama7@blanquerna.url.edu; (+34) 659708303

Abstract

Background: While the Robson Ten-Group Classification System is extensively used to assess and monitor caesarean section rates, its association with exclusive breastfeeding (EBF) outcomes at hospital discharge remains underexplored. To examine differences in exclusive breastfeeding at hospital discharge across Robson classification groups in births attended at Hospital Universitario de la Ribera (Spain) between 2010 and 2023. **Methods:** Retrospective observational study at a public hospital between January 1, 2010, and December 31, 2023. Births were retrospectively classified using the Robson Ten-Group Classification System. Exclusive breastfeeding at hospital discharge was analysed across the Robson groups. Sociodemographic, obstetric, and neonatal characteristics were collected. A binomial logistic regression model was developed to assess predictors of exclusive breastfeeding at discharge. Model fit was tested using the Hosmer–Lemeshow test and Nagelkerke's R^2. **Results:** The study analysed 23,081 births classified using the Robson system, and 23,037 to breastfeeding analysis. The overall EBF rate at discharge was 74.2%, with significant variation across Robson groups. Group 1 had the highest exclusive breastfeeding rate (78.3%) and Group 8 the lowest (56.5%). Key factors positively associated with EBF included non-Spanish origin, nulliparity, cephalic presentation, singleton pregnancy, and term gestation. The regression model explained 6.5% of the variance in exclusive breastfeeding outcomes and correctly classified 74.3% of the cases. **Conclusions:** This study suggests that the Robson classification system can be a valuable tool for identifying maternal groups at higher risk of not exclusively breastfeeding at discharge. When combined with sociodemographic variables, it provides a more comprehensive understanding of the factors influencing breastfeeding outcomes. These findings underscore the need for targeted, evidence-based interventions to promote and sustain exclusive breastfeeding.

Keywords: caesarean section; Robson classification; perinatal outcomes; exclusive breastfeeding; cross-sectional study

1. Introduction

Breastfeeding is considered the optimal form of nutrition for newborns. However, the rates of exclusive breastfeeding (EBF) remain below the 50% target recommended by the World Health Organization (WHO) for 2025 [1]. In our context, data from the National Institute of Statistics through

 doi:10.20944/preprints202509.2455.v1

the National Health Survey indicate that only 39% of babies were breastfed up to six months [2]. Nevertheless, scientific literature shows that breastfeeding rates in our region range from 81.5% at hospital discharge to 42.5% at six months of age [3]. Caesarean birth is one of the risk factors that may hinder the establishment and continuation of breastfeeding [4,5], with emergency caesarean sections being particularly associated with greater initial challenges in initiating breastfeeding [3,5]; however, the evidence regarding its impact remains inconclusive, which justifies the need to adopt multifactorial approaches—such as the Robson classification—to better understand this relationship.

In 2001, Robson introduced a classification system designed to monitor caesarean delivery rates based on specific obstetric characteristics [6]. This system has been recognized worldwide as a valuable tool for analysing and comparing caesarean rates across different settings [7]. This comprises ten well-defined groups that are mutually exclusive, fully inclusive, prospective, clinically relevant, and easy to implement. The Robson Ten-Group Classification System (RTGCS) incorporates key factors such as type of pregnancy, maternal obstetric history, mode of labour onset, and gestational age at birth [6]. By providing a structured framework, it enables the identification of obstetric characteristics contributing to increased caesarean rates [8]. Its application across diverse contexts has demonstrated effectiveness in monitoring and managing caesarean delivery rates, with favourable outcomes reported [9,10].

Evidence regarding differences between the Robson classification groups and the initiation of breastfeeding is limited. Efforts have been made to develop algorithms that promote skin-to-skin contact within the first hour of birth, taking the Robson classification into account, indirectly improving breastfeeding outcomes [11]. Although this classification focuses on the mode of birth, some studies have explored the relationship between the mode of birth and breastfeeding. In this regard, it has been observed that early initiation of breastfeeding is less likely after a caesarean birth compared to vaginal birth. Since the Robson groups are defined by factors such as the number of pregnancies [12], previous caesarean history [5,12], mode of labour onset [3], and foetal position, it is plausible that these factors—and thus the Robson classification—could influence the initiation of breastfeeding.

However, no studies have specifically focused on EBF rates at hospital discharge across the Robson classification groups. Most previous research focuses on caesarean rates and their indications within each group, without examining specifically how these categories may influence breastfeeding. Therefore, the aim of the present study is to analyse whether there are differences in breastfeeding at hospital discharge among the different groups of the RTGCS in births attended at the Hospital Universitario de la Ribera (HULR) from 2010 to 2023. As secondary objectives, this study aimed to identify the sociodemographic and obstetric characteristics associated with these differences and to evaluate the independent effect of key predictors on breastfeeding using a regression model.

2. Materials and Methods

2.1. Study Design, Population, and Sample

This study utilized a retrospective observational design based on medical records, analysing all births that occurred at HULR between 1 January 2010 and 31 December 2023.

HULR is a public hospital located in the eastern region of Spain, serving a population of approximately 250,000 inhabitants and attending an average of 1,300 births annually. It is the only hospital in Spain that has its data publicly available on the Robson classification WHO platform.

Data were collected by reviewing the electronic medical records of all births that occurred during the study period, thereby making the study population and sample effectively the same. Stillbirths were included and analysed in the study to ensure a comprehensive assessment of all pregnancy outcomes within the hospital setting. Their inclusion is consistent with the recommendations of the World Health Organization (WHO), which endorses the use of the RTGCS for analysing all births—regardless of neonatal outcome—to facilitate a standardized and inclusive evaluation of obstetric care. Stillbirths were excluded in the analysis of breastfeeding rates.

2.2. Data Collection

The RTGCS was used to classify caesarean sections in the sample population. An overview of the criteria used to define each group:

- Group 1: Nulliparous, singleton cephalic, ≥37 weeks, spontaneous labour.
- Group 2a: Nulliparous, singleton cephalic, ≥37 weeks, induced labour.
- Group 2b: Nulliparous, singleton cephalic, ≥37 weeks, caesarean delivery before labour.
- Group 3: Multiparous, singleton cephalic, ≥37 weeks, spontaneous labour.
- Group 4a: Multiparous, singleton cephalic, ≥37 weeks, induced labour.
- Group 4b: Multiparous, singleton cephalic, ≥37 weeks, caesarean delivery before labour.
- Group 5: Previous caesarean delivery, singleton cephalic, ≥37 weeks, spontaneous or induced labour, or caesarean delivery before labour.
- Group 6: Nulliparous singleton breech, spontaneous or induced labour, or caesarean delivery before labour.
- Group 7: Multiparous singleton breech (including previous caesarean delivery), spontaneous or induced labour, or caesarean delivery before labour.
- Group 8: Multiple pregnancies, spontaneous or induced labour, or caesarean delivery before labour.
- Group 9: Abnormal singleton lies (excluding breech but including prior caesarean delivery), spontaneous or induced labour, or caesarean delivery before labour.
- Group 10: Singleton cephalic, ≤36 weeks (including previous caesarean delivery), spontaneous or induced labour, or caesarean delivery before labour.

An anonymized dataset of births occurring within the study period was extracted from the hospital's electronic medical records by the systems department. The dataset included all variables necessary for classification according to the Robson Ten Group Classification System (RTGCS) and was subsequently subjected to analysis by the research team. The classification was based on five key variables: parity and history of previous caesarean delivery, onset of labour (spontaneous, induced, or pre-labour caesarean), foetal presentation (cephalic, breech, or transverse), number of foetuses, and gestational age (preterm or full term).

The absolute contribution of a Robson group refers to the percentage of CS births from that specific group relative to the total number of births (vaginal and CS). This measure offers a population-level perspective on the group's absolute impact, facilitating the identification of groups that significantly influence the overall CS burden, irrespective of their size or intrinsic CS rate.

Conversely, the relative contribution expresses the percentage of CS births within a specific group relative to the total number of CS births performed across all groups. This metric reflects each group's proportional weight in the global composition of CS, enabling prioritization based on the magnitude of each group's impact on the total CS rate.

These metrics are complementary, while absolute contribution helps quantify the population effect, relative contribution guides attention towards groups that proportionally account for a larger number of CS births, thus representing priority areas for interventions aimed at optimizing obstetric practice.

Additional variables collected included:

Sociodemographic characteristics: Maternal age (completed years) and country of origin (Spain or other than Spain).

Obstetric-perinatal: Neonatal sex (male/female), birth weight (grams), parity, umbilical cord arterial pH, Apgar score at 1 and 5 minutes after birth, foetal death (yes/no), admission to the Neonatal Intensive Care Unit (NICU) (yes/no), moderate prematurity <32 weeks (yes/no), mode of birth (vaginal birth/caesarean birth), type of anaesthesia (none, epidural, spinal, or general).

Exclusive breastfeeding: exclusive breastfeeding (Yes), mixed feeding or formula feeding (No). The average length of hospital stay in our centre is 48 hours for vaginal births and 72 hours for caesarean births. This variable was considered relevant, as it may influence the outcome of EBF at discharge. The type of feeding at discharge was routinely recorded in the electronic medical record on the day of hospital discharge, providing a standardized measure across all cases.

2.3. Statistical Analysis

A descriptive statistical analysis was conducted to examine the sociodemographic, obstetric, and neonatal characteristics of the study sample. Continuous variables were presented as means standard deviations (SD), minimum and maximum, while categorical variables were reported as frequencies and percentages.

To assess differences between Robson groups in relation to sociodemographic, obstetric, and neonatal variables, as well as EBF at discharge, Chi-square (χ^2) tests were used for categorical variables. Odds ratios (OR) with 95% confidence intervals (CI) were calculated to evaluate the association between Robson groups and EBF at discharge. For the main analysis of EBF, subgroups 2a/2b and 4a/4b were combined into Group 2 and Group 4, respectively. This grouping aligns with standard practice and facilitates clearer clinical interpretation as well as comparability with other studies analysing breastfeeding outcomes. To study the degree of association between the categorical variables of the research, Pearson's Phi was used (when the cross-tabulation matrix was 2x2) or Cramer's V (when the resulting matrix was other than 2x2), both serving as relevant measures of effect size. Both the value of the statistic and its significance are reported.

To assess the association between various predictor variables and EBF at discharge, a binomial logistic regression analysis was performed. Model fit was evaluated using the Hosmer–Lemeshow test. Nagelkerke's R^2 was calculated to estimate the proportion of variance explained by the model.

For all analyses, a p-value < 0.05 was considered statistically significant. Statistical analyses were conducted using SPSS version 28.

3. Results

The sample consisted of 23,081 records, classified according to the RTGCS.
Sociodemographic, obstetric, and neonatal characteristics are presented in Table 1.

Table 1. Sociodemographic, obstetric, and neonatal characteristics of the study sample (N = 23,081).

		n	%
Maternal country of origin	Spain	18,019	78.069
	Other than Spain	5,062	21.931
Neonatal sex	Male	11,819	51.207
	Female	11,262	48.793
Parity	0	12,731	55.158
	>1	10,350	44.842
Number of foetuses	Singleton	22,842	98.965
	Multiple	239	1.035
Previous caesarean section	No	22,476	97.379
	Yes	605	2.621
Onset of labour	Spontaneous	14,260	61.782
	Induced	7,602	32.936
	Elective caesarean	1,048	4.541
	Emergency caesarean	171	0.741
Mode of birth	Vaginal	18,629	80.711
	Caesarean	4,452	19.289
Robson group	1	6,851	29.682
	2	4,555	19.735
	3	6,437	27.889
	4	2,839	12.300

Preprints.org (www.preprints.org) | NOT PEER-REVIEWED | Posted: 29 September 2025 doi:10.20944/preprints202509.2455.v1

	5	350	1.516
	6	523	2.266
	7	220	0.953
	8	239	1.035
	9	64	0.277
	10	1,003	4.346
EBF at discharge	Yes	17,102	74.096
	No	5,979	25.904
Early initiation of breastfeeding	30 min	1,649	50.061
	60 min	1,384	42.016
	120 min	261	7.923
Stillbirth	No	23,037	99.809
	Yes	44	0.191
Moderate prematurity <32w	No	23,035	99.801
	Yes	46	0.199
Admission to NICU	No	20,484	88.748
	Yes	2,597	11.252

	N	Minimum	Maximum	Mean	Std. Deviation
Maternal age	23081	13	51	30.872	5.803
Umbilical cord arterial pH	21264	0.000	7.450	7.240	0.339
Birth weight	21884	250	5730	3292.145	476.289
Gestational age at birth	23081	24	43	39.191	1.558

EBF: Exclusive breastfeeding; NICU: Neonatal Intensive Care Unit.

The overall EBF rate at discharge was 74.096%; 74.615% among vaginal births, 72.737% in emergency caesarean births, and 69.275% in elective pre-labour caesarean sections, with statistically significant differences between these groups.

Table 2 presents the distribution of EBF at discharge across the different Robson groups. The results suggest significant differences in the likelihood of EBF at discharge across the Robson groups. Group 1 presented the highest probability of EBF at discharge, while Groups 8, 5, and 7 had the lowest rates. EBF prevalence at discharge ranged from 56.485% in Group 8 to 78.339% in Group 1. Corresponding odds ratios (ORs) ranged from 0.359 (Group 8) to 0.973 (Group 2), with Group 2 being the closest to the reference group (Group 1).

Table 2. Distribution of EBF at discharge by RTGCS in the study sample (N = 23,037).

Robson group	***n***	**Cs-rate (%)**	χ^2 ***p*-value**	**OR (CI95%) *p*-value**	**EBF at discharge (%)**	χ^2 ***p*-value**	**OR (CI95%) *p*-value**
1	6,845	11.852		NA	78.339		NA
2	4,549	31.109	5497205 <0.001	3.358 (3.050-3.698) <0.001	77.863	221.958 <0.001	0.973 (0.888-1.065) 0.465
3	6,434	5.406		0.425 (0.373-0.484) <0.001	71.064		0.679 (0.628-0.735) <0.001
4	2,834	15.604		1.375	71.353		0.689

doi:10.20944/preprints202509.2455.v1

			(1.213-1.558) <0.001		(0.623-0.761) <0.001
5	349	66.571	14.811 (11.722-18.713) <0.001	64	0.492 (0.392-0.616) <0.001
6	520	98.088	381.528 (203.182-716.418) <0.001	72.658	0.735 (0.601-0.898) 0.003
7	219	96.818	226.303 (106.213-482.173) <0.001	64.384	0.5 (0.377-0.663) <0.001
8	238	62.762	12.535 (9.547-16.457) <0.001	56.485	0.359 (0.276-0.466) <0.001
9	63	100	0 0 0.0966	71.875	0.707 (0.409-1.222) 0.214
10	986	25.823	2.589 (2.208-3.036) <0.001	69.057	0.617 (0.533-0.715) <0.001

NA: No apply; CS: caesarean section; χ^2: Chi-squared test; OR: odds ratio; CI95%: Confidence Interval 95%, EBF: Exclusive breastfeeding. Stillbirths were excluded in the analysis of EBF at discharge. Note: Group 2 includes subgroups 2a and 2b; Group 4 includes subgroups 4a and 4b, according to the methodology for the exclusive breastfeeding (EBF) analysis.

Additionally, we analysed the overall impact of the variables included in the RTGCS on EBF outcomes at hospital discharge, as well as other perinatal factors known to influence breastfeeding prevalence. Forty-four stillbirths were excluded from the analysis of breastfeeding rates, resulting in a total sample of 23,037 (Supplementary Table 1). As shown in Table 3, variables such as mode of delivery, foetal presentation, and gestational age at birth were significantly associated with EBF prevalence, which reached 74.237% in the total sample. However, the strength of these associations was generally weak to moderate. Vaginal births were associated with a slightly higher EBF prevalence compared to caesarean sections. In relation to the foetal presentation, non-cephalic foetal presentations (breech and oblique/transverse) were significantly associated with lower EBF rates at discharge compared to cephalic presentations. Term births were more strongly associated with EBF compared to preterm births. Moreover, EBF rates at discharge were higher among newborns that were not admitted to the NICU compared to those who required an admission in this unit. A higher EBF prevalence was also observed among neonates with Apgar scores >7 at five minutes compared to those with scores ≤7, and among singleton births compared to multiple births. The expected percentages represent the predicted occurrences in cases where the variable does not have an impact on the occurrence of the observed situations in EBF at discharge, which requires obtaining the product of the marginal scores (column x row) of each cell in the cross-data matrix and dividing the resulting value by the sample size.

Table 3. Obstetric variables included in the Robson Ten-Group Classification System and perinatal outcomes associated with exclusive breastfeeding at hospital discharge. Forty-four stillbirths excluded. (N = 23,037).

Variable		*n*	EBF at discharge (observed %)	EBF at discharge (expected %)	χ^2 Value	χ^2 *p*-value	Phi or V Value	Phi or V *p*-value
Mode of birth	Vaginal	18,597	74.783%	74.237%	15.018	<0.001	Phi = 0.026	<0.001
	Caesarean	4,450	71.955%					
Foetal presentation	Cephalic	22,154	74.456%	74.237%	15.538	<0.001	V = 0.026	<0.001
	Breech	814	68.305%					
	Oblique Transverse	69	73.913%					
Gestational age	>37	22,053	74.475%	74.237%	22.738	<0.001	V = 0.031	<0.001
	32-37	951	69.611%					
	<32	33	48.485%					
Multiple pregnancy	No	22,798	74.423%	74.237%	39.792	<0.001	Phi = 0.042	<0.001
	Yes	239	56.485%					
Apgar <7 at 5 minutes	No	22,921	74.338%	74.237%	24.205	<0.001	Phi = 0.032	<0.001
	Yes	116	54.310%					
NICU admission	No	20,440	74.560%	74.237%	9.866	0.002	Phi = 0.021	0.002
	Yes	2597	71.698%					

N: sample size; χ^2: Chi-squared test; EBF: Exclusive Breastfeeding; NICU: Neonatal Intensive Care Unit.

The overall caesarean section rate was 19.289%, with substantial variation across the ten groups. Key differences in group distribution are detailed in Table 4. The greatest relative contribution to the total caesarean rate over the study period was observed in Group 2 (31.828%), followed by Group 1 (18.239%), and Group 6 (11.523%).

Table 4. Distribution of caesarean births according to the Robson Ten Group Classification System for births attended between 2010 and 2023 at the HULR (N = 23,081).

Group	Total number of CS in each group	Total number of women delivered in each group	Group size	Group CS rate	Absolute Group contribution to overall CS rate	Relative contribution of the group to overall CS Rate
1	812	6,851	29.682%	11.852%	3.518%	18.239%
2	1,417	4,555	19.735%	31.109%	6.139%	31.828%
3	348	6,437	27.889%	5.406%	1.508%	7.817%
4	443	2,839	12.300%	15.604%	1.919%	9.951%
5	233	350	1.516%	66.571%	1,010%	5.234%
6	513	523	2.266%	98.088%	2.223%	11.523%

doi:10.20944/preprints202509.2455.v1

7	213	220	0.953%	96.818%	0.923%	4.784%
8	150	239	1.035%	62.762%	0.650%	3.369%
9	64	64	0.277%	100.000%	0.277%	1.438%
10	259	1,003	4.346%	25.823%	1.122%	5.818%
TOTAL	4452	23081	100.000%	/	19.289%	100.000%

CS: Caesarean section. Note: Group 2 includes subgroups 2a and 2b; Group 4 includes subgroups 4a and 4b, according to the methodology for the exclusive breastfeeding (EBF) analysis.

A binomial logistic regression analysis was performed (Table 5), including the variables encompassed by the RTGCS: parity and history of previous caesarean delivery, mode of labour onset (spontaneous, induced, or pre-labour caesarean), foetal presentation (cephalic, breech, or transverse), number of foetuses, and gestational age (preterm or full term). Additionally, variables that showed statistical significance in the bivariate analysis were included. We observed that countries of origin other than Spain, nulliparity, cephalic presentation, singleton pregnancy, and gestational age greater than 37 weeks were positively associated with EBF at discharge ($p < 0.001$ in all cases). Newborn sex (male) and maternal age were also positively associated, although with much lower effect sizes ($p < 0.050$). Mode of labour onset was not associated with EBF at discharge ($p = 0.905$).

Women whose country of origin was not Spain (OR = 3.452), nulliparous women (OR = 1.394), those with cephalic foetal presentation (OR = 1.286), singleton pregnancies (OR = 2.148), and term gestation (OR = 1.378) were all significantly more likely to exclusively breastfeed at discharge (all p<0.001, except presentation p=.001). The model fit well, correctly classifying 74.30% of cases, though its moderate explained variance ($R^2 = 0.065$) suggests other unmeasured factors influence exclusive breastfeeding.

Table 5. Factors associated with exclusive breastfeeding at discharge: Binomial logistic regression analysis. Forty-four stillbirths excluded. (N = 23,037).

Summary of the model		**Hosmer and Lemeshow test**		
Log likehood	**R Nagelkerke**	**χ^2**	**df**	***p*-value**
25.243.561	0.065	13.023	8	0.111

		EBF		
		Yes	No	
EBF	Yes	17,084	18	99.90%
	No	5,903	32	0.50%

		B	**SE**	**Wald**	**df**	***p*-value**	**OR**
Age		0.008	0.003	7.72	1	0.005	1.008 (1.002-1.013)
Country of origin	Other than Spain	1.239	0.049	650.053	1	<0.001	3.452 (3.139-3.797)
Sex	Male	0.063	0.031	4.235	1	0.04	1.065

Preprints.org (www.preprints.org) | NOT PEER-REVIEWED | Posted: 29 September 2025 doi:10.20944/preprints202509.2455.v1

							(1.003-1.132)
Nulliparity	Yes	0.332	0.031	113.639	1	<0.001	1.394 (1.312-1.482)
Previous caesarean	Yes	0.26	0.102	6.439	1	0.011	1.297 (1.061-1.585)
Mode of labour onset	Spontaneous	0.004	0.032	0.014	1	0.905	1.004 (0.942-1.069)
Presentation	Cephalic	0.252	0.078	10.377	1	0.001	1.286 (1.104-1.499)
Number of foetuses	Singleton	0.765	0.137	31.354	1	<0.001	2.148 (1.644-2.807)
Gestational age	>37 weeks	0.321	0.072	19.632	1	<0.001	1.378 (1.196-1.588)

χ^2: Chi-squared test; df: degrees of freedom; EBF: Exclusive breastfeeding; B: beta coefficient; SE: standard error. Note: Classification model: 74.30%.

4. Discussion

The Robson Classification is considered an effective method for monitoring and comparing caesarean section rates across different populations and obstetric practices worldwide [13]. The aim of this study was to analyse whether differences existed in the prevalence of EBF at hospital discharge among the various groups defined by the RTGCS.

4.1. Variations in EBF Rates Across the Robson Ten Group Classification System

We observed that the prevalence of exclusive breastfeeding was higher following vaginal births (74.615%) compared to both emergency (72.737%) and elective caesarean sections (69.275%), with statistically significant differences. Group 1, which represents the lowest obstetric risk category, showed the highest likelihood of exclusive breastfeeding (EBF) at discharge (78.3%) and served as the reference. Among all groups that showed statistically significant differences (excluding Groups 1, 2, and 9), Group 10, a heterogeneous group including preterm births, demonstrated a negative association 0.617 (95% CI: 0.533-0.715) with EBF and a low prevalence rate, consistent with existing scientific evidence [14,15]. In our study, term newborns had a higher likelihood of receiving EBF compared to those born preterm. Newborns with higher gestational age face fewer challenges in achieving successful EBF, as they have greater neuromuscular maturity, which facilitates effective sucking [16–18]. Successful EBF in preterm infants requires specific management and support [19].

The analysis of evidence regarding the relationship between labour induction and breastfeeding remains inconclusive. While some studies suggest that the administration of exogenous oxytocin may negatively affect breastfeeding by interfering with the natural hormonal processes of labour, findings are not consistent across the literature [20]. A relevant example illustrating this uncertainty is Group 2. This group showed high EBF rates, and its OR was 0.973 (95% CI: 0.888-1.065) compared to Group 1, making it the closest to Group 1 in terms of odds. This could be explained by the high initial motivation for breastfeeding commonly observed in nulliparous women during the antenatal period, which is associated with greater self-efficacy and better breastfeeding initiation [21]. However, this motivation does not always counteract the negative effects of induction, which can be associated with a less positive birth experience and a higher risk of negative affective symptoms [22,23]. It is therefore plausible that the strong initial motivation of these mothers facilitates EBF establishment during the hospital stay, but the challenges associated with induction could compromise its continuity in the medium and long term—an aspect beyond the scope of our study but worthy of future research. This finding underscores that motivation alone may be insufficient and highlights the need for enhanced professional support during hospitalization to capitalize on this initial drive and mitigate the potential adverse effects of the obstetric intervention [24].

Evidence on the influence of prior breastfeeding experience suggests a clear relationship [25]. Although multiparity is often associated with a greater likelihood of initiating and sustaining breastfeeding, the results of this study indicate that this is not always the case. For multiparous women, when considered in isolation, lower EBF rates were observed in Groups 3 and 4 compared to Group 1. Specifically, Group 3 had an OR of 0.679 (95% CI: 0.628-0.735) and Group 4 had an OR of 0.689 (95% CI: 0.623-0.761). This suggests that multiparity does not always guarantee higher EBF rates, possibly influenced by prior unsatisfactory experiences. These findings are consistent with some previous studies [26,27].

Groups 5 and 7 recorded the lowest rates of EBF among all Robson groups, with caesarean rates of 66.571% and 96.818%, respectively, and compared to Group 1, Group 5 had an OR of 0.492 (95% CI: 0.392-0.616) and Group 7 had an OR of 0.500 (95% CI: 0.377-0.663). The high likelihood of caesarean birth in these groups may explain their lower EBF prevalence. Previous studies have indicated that vaginal birth is associated with earlier initiation of breastfeeding [28,29]. In contrast, caesarean sections—particularly unplanned ones—may delay skin-to-skin contact and early initiation of breastfeeding, thus hindering the establishment of lactation [30,31]. In our study, 74.783% of women who had a vaginal delivery practiced EBF, a percentage that dropped to 71.955% among those who underwent a caesarean section. Moreover, other authors have observed that surgical interventions and the use of medications during caesarean delivery can influence the mother's ability to breastfeed during the early postpartum period [32,33]. Therefore, we can infer that the high likelihood of caesarean delivery in these groups may explain their lower EBF prevalence.

Furthermore, foetal presentation at birth significantly influences the mode of delivery, as previously discussed. Breech presentations that result in caesarean births may delay the initiation of breastfeeding and impair the mother's ability to breastfeed [34–36]. This is a relevant finding, considering that in Spain, elective caesarean sections for term breech presentations are currently recommended in most hospital settings [34,37,38].

In contrast, Group 6 showed an EBF rate of 72.658%, which was lower than Group 1's rate of 78.339%. Correspondingly, its OR compared to Group 1 was 0.735 (95% CI: 0.601-0.898), suggesting a lower probability of EBF in this group. A possible explanation for the observed EBF rate in Group 6, despite its unique characteristics, may relate to factors such as nulliparity, as previously discussed, as well as greater motivation and preparation in the context of breech presentation, which in 98.09% of cases resulted in elective caesarean section.

Finally, Group 8 had the lowest EBF rate (56.485%) compared to Group 1 and had a significantly lower likelihood of EBF at discharge (OR 0.359; 95% CI: 0.276-0.466), consistent with other authors, likely due to the greater difficulty involved in breastfeeding twins [39]. It is important to note that, in line with previously reported evidence, our results only capture EBF at hospital discharge, and it is likely that breastfeeding rates may decline in the weeks that follow [40].

4.2. Perinatal Outcomes Associated with the RTGCS and Their Relationship with EBF

Singleton vaginal birth, cephalic presentation, term gestational age, an Apgar score >7 at 5 minutes, and no admission to the NICU were all associated with higher EBF rates. These characteristics are common in Robson Groups 1, 2, 3, and 4, and possibly Group 5, although the latter has a lower likelihood of vaginal birth. A low Apgar score (<7) has been linked to a decreased likelihood of early breastfeeding initiation, particularly in newborns admitted to the NICU, due to challenges with immediate skin-to-skin contact [41–43]. Although higher Apgar scores facilitated effective breastfeeding at 36 hours, this study did not find a clear association with long-term success

[44]. In our study, Groups 8 and 10, with higher percentages of NICU admissions and/or low Apgar scores, showed the lowest EBF prevalence rates. Stillbirth was more frequent in the preterm Group 10, consistent with recent literature [45].

4.3. Robson Classification

The World Health Organization (WHO) recommends a caesarean section rate of 10–15%. According to recent data, the average caesarean section rate in Spain stands at 25%, with significant differences between public and private healthcare sectors, as well as across different regions of the country. In the public sector, the rate is 22.4%, whereas in the private sector it increases to 34.5%. Therefore, the rate observed in our study—19.289%—is below the national average and the rates reported in both sectors [46].

Our findings show that most women attending belonged to Group 1, followed by those in Group 3. A noteworthy finding is that Group 2 presented the highest caesarean section rate, exceeding the overall sample average. Although current evidence [47] suggests that labour induction in term, uncomplicated singleton pregnancies does not significantly increase the risk of caesarean delivery (RR 1.25; 95% CI 0.75–2.08), our results indicate that nulliparity may be a key factor in this association. The higher incidence of caesarean sections in this group highlights the need to review induction protocols and more precisely evaluate the indications for labour induction, as highlighted in previous studies [48].

Our results confirm that caesarean section rates vary notably across the different groups in the Robson classification, with significantly elevated rates in Groups 5, 6, and 7, all of which greatly exceed the overall average and WHO recommendations. This pattern is consistent with previous evidence [49] indicating that Group 5 is the main contributor to the overall caesarean section rate in Europe, accounting for up to 95.0% of caesarean sections in Southern Europe. Furthermore, the predominance of caesarean births in Groups 6 and 7 suggests that current management protocols for these cases may influence the decision regarding the mode of delivery.

The observed differences may be attributed to multiple factors, including variations in clinical protocols, resource availability, and obstetric practices across healthcare centres. These findings underscore the need to review strategies aimed at reducing primary caesarean rates and to optimize decision-making in obstetric care, in alignment with international recommendations to improve maternal and neonatal outcomes.

4.4. Multivariate Analysis of the Variables Classifying the Robson Groups and EBF at Discharge

Our multivariate analysis identified several factors significantly associated with exclusive breastfeeding (EBF) at hospital discharge: multiparity, cephalic presentation, singleton pregnancies, and gestational age over 37 weeks. These characteristics correspond to Robson Group 3, which showed a moderate EBF rate, suggesting their contribution to breastfeeding success.

Additionally, foreign-born mothers were significantly more likely to exclusively breastfeed compared to Spanish-born mothers, consistent with previous findings [50–52], highlighting the influence of cultural and ethnic background.

Interestingly, male newborns were slightly more likely to be exclusively breastfed. This modest association contrasts with other studies, suggesting context-dependency and warranting further research [53].

In contrast to some previous studies that have reported a negative association between labour induction and breastfeeding outcomes, our analysis did not find a significant relationship between the mode of labour onset (spontaneous vs. induced or no labour) and exclusive breastfeeding at discharge (p = 0.905). This discrepancy may reflect differences in clinical practices, timing of breastfeeding support, or population characteristics, and highlights the need for further research to clarify the impact of labour induction on early breastfeeding success.

The model showed good fit (Hosmer–Lemeshow test, p = 0.111) and 74.30% classification accuracy. However, its moderate explanatory power (Nagelkerke R^2 = 0.065) suggests other

 doi:10.20944/preprints202509.2455.v1

unmeasured factors like socioeconomic status, social support, education access, and cultural beliefs also play a critical role.

The integration of results with the RTGCS enables the identification of specific groups of women who may require targeted support to promote EBF at discharge. Our findings indicate that groups 5, 7, 8, and 10 exhibit lower EBF rates, highlighting the need to focus efforts on these populations by implementing tailored interventions to enhance breastfeeding outcomes, in line with other authors [54]. The combination of formal education and professional support, especially when extended throughout the prenatal and postnatal periods, is the most robust strategy to improve the initiation and continuation of breastfeeding [55,56]. We acknowledge that breastfeeding is a complex phenomenon and that our study only analyses a subset of obstetric and neonatal factors and cannot provide a comprehensive understanding of all determinants.

Our study presents several strengths that enhance the value and rigor of the findings. First, the use of the RTGCS as a standardized criteria for categorizing births allows for objective comparison with other studies and facilitates the identification of patterns in caesarean section and breastfeeding rates [6]. Second, the large sample size provides a robust foundation for statistical analysis and enables the detection of significant differences between groups. This increases the reliability of the results and reduces the risk of biases associated with small sample sizes [57].

However, our study also has some limitations. First, due to its observational design, it is not possible to fully control for confounding variables that may influence the outcomes. Additionally, the retrospective nature of the study means the results depend heavily on the accuracy and completeness of the recorded data, which may introduce bias or missing variables. Furthermore, some relevant confounding factors may not have been recorded, limiting the ability to adjust for them. In addition, the generalizability of our findings to other populations is limited. To improve the applicability of these results, future research should focus on prospective, multicentre studies that allow for broader extrapolation [58].

Then, although statistically significant differences were identified between groups, the effect sizes observed in most comparisons were modest. This may be attributed to the large sample size, suggesting that the impact of the analysed variables on breastfeeding may be small to moderate [59,60]. Therefore, the results should be interpreted with caution in their clinical application.

Another relevant limitation is the explanatory capacity of the binary logistic regression model. Although it demonstrates a good overall fit and allows the extraction of clinically relevant predictive dimensions, it explains only 6.5% of the variance in breastfeeding at discharge. This relatively low specificity in multivariate classification analyses—despite high sensitivity—is not entirely surprising. It underscores that breastfeeding is an inherently complex phenomenon, influenced by a myriad of interacting biological, psychological, social, and cultural factors, many of which are challenging to fully quantify and incorporate into a statistical model. Consequently, a significant portion of the variability in breastfeeding outcomes naturally remains beyond the explanatory reach of such models [61].

5. Conclusions

This study highlights the importance of monitoring caesarean section rates and identifying the factors that influence them using the RTGCS. This tool proves to be valuable for understanding how obstetric and neonatal factors affect EBF at discharge and enables the identification of groups of women who require targeted support. By combining this classification system with the analysis of other variables—such as maternal country of origin or socioeconomic status—a more comprehensive understanding of the determinants of EBF can be achieved. Therefore, this could facilitate the design of more effective interventions to promote and support breastfeeding from pregnancy through the postpartum period.

Although the obstetric and neonatal factors that hinder EBF are well known individually, the RTGCS allows us to identify specific groups of mothers who require targeted support to enhance initiation, success, and sustained exclusive breastfeeding over time. This approach underscores the need for tailored strategies to support breastfeeding based on a multidimensional assessment of maternal and perinatal characteristics.

Supplementary Materials: The following supporting information can be downloaded at the website of this paper posted on Preprints.org, Table 1 Supplementary: Perinatal outcomes associated with the RTGCS and their relationship with EBF.

Author Contributions: Conceptualization and methodology, R.V.-C.; formal analysis, R.V.-C.; data curation, R.V.-C., J.M.-M., writing—original draft preparation, R.V.-C., F.L.-L, A.M.-A, and D.M.-T.; writing—review and editing, R.V.-C., F.L.-L, A.M.-A, D.M.-T and J.M.-M. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the principles of the Declaration of Helsinki and was approved by the Research Ethics Committee of Hospital HULR (PI040522).

Informed Consent Statement: Given the retrospective nature of the medical record review, which involved anonymized electronic data, and no direct patient contact, informed consent and patient information sheets were not required. Confidentiality was strictly maintained throughout the study.

Data Availability Statement: Data are available upon reasonable request. All necessary data are supplied and available in the manuscript; however, the corresponding author will provide the dataset upon request.

Acknowledgments: We would like to thank all healthcare staff who contributed, directly or indirectly, to patient care, as well as the Hospital Universitario de la Ribera and Blanquerna School of Health Sciences – Universitat Ramon Llull for their steadfast commitment to advancing research in women's health.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. World Health Organization *Global Nutrition Targets 2025*; 2014;
2. Instituto Nacional de Estadística Tipo de lactancia según sexo y clase social basada en la ocupación de la persona de referencia. Población de 6 meses a 4 años Available online: https://www.ine.es/jaxi/Tabla.htm?path=/t15/p419/a2011/p06/l0/&file=06153.px&L=0.
3. Vila-Candel, R.; Soriano-Vidal, F.J.; Franco-Antonio, C.; Garcia-Algar, O.; Andreu-Fernandez, V.; Mena-Tudela, D. Factors Influencing Duration of Breastfeeding: Insights from a Prospective Study of Maternal Health Literacy and Obstetric Practices. *Nutrients* **2024**, *16*, doi:10.3390/nu16050690.
4. Sodeno, M.; Tappis, H.; Burnham, G.; Ververs, M. Associations between caesarean births and breastfeeding in the middle east: A scoping review. *East. Mediterr. Heal. J.* **2021**, *27*, 931–940, doi:10.26719/emhj.21.027.
5. Li, L.; Wan, W.; Zhu, C. Breastfeeding after a cesarean section: A literature review. *Midwifery* **2021**, *103*, 103117, doi:10.1016/j.midw.2021.103117.
6. Robson, M.S. Classification of caesarean sections. *Fetal Matern. Med. Rev.* **2001**, *12*, 23–39, doi:10.1017/S0965539501000122.
7. FIGO Working Group on Challenges in Care of Mothers and Infants during Labour and Delivery Best practice advice on the 10-Group Classi fi cation System for cesarean deliveries FIGO Working Group on Challenges in Care of Mothers and Infants during Labour and Delivery. *Int. J. Gynecol. Obstet.* **2016**, *135*, 232–233, doi:https://doi.org/10.1016/j.ijgo.2016.08.001.
8. Parveen, R.; Khakwani, M.; Naz, A.; Bhatti, R. Analysis of cesarean sections using robson's ten group classification system. *Pakistan J. Med. Sci.* **2021**, *37*, 1–5, doi:10.12669/pjms.37.2.3823.
9. Akadri, A.A.; Imaralu, J.O.; Salami, O.F.; Nwankpa, C.C.; Adepoju, A.A. Robson classification of caesarean births: implications for reducing caesarean section rate in a private tertiary hospital in Nigeria. *BMC Pregnancy Childbirth* **2023**, *23*, 1–8, doi:10.1186/s12884-023-05557-x.
10. Pastor, L.; Garcia-Jimenez, R.; Valero, I.; Borrero, C.; Castro, L.; Garcia-Mejido, J.A.; Sainz Bueno, J.A. Application of Robson's Ten Group Classification System to standardize patient management. A useful

way to reduce cesarean rates. *Clin. Invest. Ginecol. Obstet.* **2024**, *51*, 100935, doi:https://doi.org/10.1016/j.gine.2023.100935.

11. Brimdyr, K.; Cadwell, K.; Stevens, J.; Takahashi, Y. An implementation algorithm to improve skin-to-skin practice in the first hour after birth. *Matern. Child Nutr.* **2018**, *14*, doi:10.1111/mcn.12571.
12. Cohen, S.S.; Alexander, D.D.; Krebs, N.F.; Young, B.E.; Cabana, M.D.; Erdmann, P.; Hays, N.P.; Bezold, C.P.; Levin-Sparenberg, E.; Turini, M.; et al. Factors Associated with Breastfeeding Initiation and Continuation: A Meta-Analysis. *J. Pediatr.* **2018**, *203*, 190-196.e21, doi:10.1016/j.jpeds.2018.08.008.
13. Opiyo, N.; Torloni, M.R.; Robson, M.; Ladfors, L.; Gholbzouri, K.; Kacerauskiene, J.; Vila-Candel, R.; Kessler, J.; Lucovnik, M.; Betrán, A.P. WHO's Robson platform for data-sharing on caesarean section rates. *Bull. World Health Organ.* **2022**, *100*, 352–354, doi:10.2471/BLT.21.287742.
14. Hilditch, C.; Howes, A.; Dempster, N.; Keir, A. What evidence-based strategies have been shown to improve breastfeeding rates in preterm infants? *J. Paediatr. Child Health* **2019**, *55*, 907–914, doi:10.1111/jpc.14551.
15. Tong Song, J.; Woo Kinshella, M.-L.; Kawaza, K.; Goldfarb, D.M. Neonatal Intensive Care Unit Interventions to Improve Breastfeeding Rates at Discharge Among Preterm and Low Birth Weight Infants: A Systematic Review and Meta-Analysis. *Breastfedding Med.* **2023**, *18*, 97–106, doi:https://doi.org/10.1089/bfm.2022.0151.
16. Jónsdóttir, R.B.; Jónsdóttir, H.; Skúladóttir, A.; Thorkelsson, T.; Flacking, R. Breastfeeding progression in late preterm infants from birth to one month. *Matern. Child Nutr.* **2020**, *16*, doi:10.1111/mcn.12893.
17. Maastrup, R.; Hansen, B.M.; Kronborg, H.; Bojesen, S.N.; Hallum, K.; Frandsen, A.; Kyhnaeb, A.; Svarer, I.; Hallström, I. Breastfeeding progression in preterm infants is influenced by factors in infants, mothers and clinical practice: The results of a national cohort study with high breastfeeding initiation rates. *PLoS One* **2014**, *9*, doi:10.1371/journal.pone.0108208.
18. Zukova, S.; Krumina, V.; Buceniece, J. Breastfeeding preterm born infant: Chance and challenge. *Int. J. Pediatr. Adolesc. Med.* **2021**, *8*, 94–97, doi:10.1016/j.ijpam.2020.02.003.
19. Boies, E.G.; Vaucher, Y.E. ABM Clinical Protocol #10: Breastfeeding the Late Preterm (34-36 6/7 Weeks of Gestation) and Early Term Infants (37-38 6/7 Weeks of Gestation), Second Revision 2016. *Breastfeed. Med.* **2016**, *11*, 494–500, doi:10.1089/bfm.2016.29031.egb.
20. Erickson, E.N.; Emeis, C.L. Breastfeeding Outcomes After Oxytocin Use During Childbirth: An Integrative Review. *J. Midwifery Women's Heal.* **2017**, *62*, 397–417, doi:10.1111/jmwh.12601.
21. Piro, S.S.; Ahmed, H.M. Impacts of antenatal nursing interventions on mothers' breastfeeding self-efficacy: An experimental study. *BMC Pregnancy Childbirth* **2020**, *20*, 1–12, doi:10.1186/s12884-019-2701-0.
22. Zanardo, V.; Bertin, M.; Sansone, L.; Felice, L. The adaptive psychological changes of elective induction of labor in breastfeeding women. *Early Hum. Dev.* **2017**, *104*, 13–16, doi:10.1016/j.earlhumdev.2016.10.007.
23. Place, K.; Rahkonen, L.; Verho-Reischl, N.; Adler, K.; Heinonen, S.; Kruit, H. Childbirth experience in induced labor: A prospective study using a validated childbirth experience questionnaire (CEQ) with a focus on the first birth. *PLoS One* **2022**, *17*, 1–16, doi:10.1371/journal.pone.0274949.
24. Balogun, O.O.; O'sullivan, E.J.; Mcfadden, A.; Ota, E.; Gavine, A.; Garner, C.D.; Renfrew, M.J.; Macgillivray, S. Interventions for promoting the initiation of breastfeeding (Review). *Cochrane Database Syst. Rev.* **2016**, CD001688, doi:10.1002/14651858.CD001688.pub3.
25. Huang, Y.; Ouyang, Y.Q.; Redding, S.R. Previous breastfeeding experience and its influence on breastfeeding outcomes in subsequent births: A systematic review. *Women and Birth* **2019**, *32*, 303–309, doi:10.1016/j.wombi.2018.09.003.
26. Buckman, C.; Diaz, A.L.; Tumin, D.; Bear, K. Parity and the Association Between Maternal Sociodemographic Characteristics and Breastfeeding. *Breastfedding Med.* **2020**, *15*, 443–452, doi:10.1089/bfm.2019.0284.
27. Hackman, N.M.; Schaefer, E.W.; Beiler, J.S.; Rose, C.M.; Paul, I.M. Breastfeeding outcome comparison by parity. *Breastfedding Med.* **2015**, *10*, 156–162, doi:10.1089/bfm.2014.0119.
28. Badaya, N.; Jain, S.; Kumar, N. Time of initiation of breastfeeding in various modes of delivery and to observe the effect of low birth weight and period of gestation on initiation of breastfeeding. *Int. J. Contemp. Pediatr.* **2018**, *5*, 1509, doi:10.18203/2349-3291.ijcp20182555.

29. Sharma, S.; Chowdhury, R.; Taneja, S.; Mazumder, S.; Bhatia, K.; Ghosh, R.; Karantha, S.C.; Dhabhai, N.; Chellani, H.; Bahl, R.; et al. Breastfeeding practices based on the gestational age and weight at birth in the first six months of life in a population-based cohort of infants from North India. *Front. Pediatr.* **2023**, *11*, 1–8, doi:10.3389/fped.2023.1127885.
30. Hung, K.J.; Berg, O. Benefits of Skin-to-Skin. *MCN Am. J. Matern. Nurs.* **2011**, *36*, 318–324, doi:10.1097/NMC.0b013e3182266314.
31. Mallick, L.; Wang, W.; Farid, S. Initiation of Breastfeeding in Low- and Middle-Income. *Glob. Heal. Sci. Pract.* **2020**, *9*, 308–317, doi:https://doi.org/10.9745/GHSP-D-20-00361.
32. Ahmad, K.; Mahwish, R.; Mazhar, M.; Bashir, M.; Yousaf, M. Determinants of Early Initiation of Breastfeeding after Cesarean Section in aTertiary Care Hospital. *Esculapio* **2023**, *19*, 359–364, doi:10.51273/esc23.251319321.
33. Beake, S.; Bick, D.; Narracott, C.; Chang, Y.S. Interventions for women who have a caesarean birth to increase uptake and duration of breastfeeding: A systematic review. *Matern. Child Nutr.* **2017**, *13*, e12390, doi:10.1111/mcn.12390.
34. Hannah, M.E.; Hannah, W.J.; Hewson, S.A.; Hodnett, E.D.; Saigal, S.; Willan, A.R. Planned caesarean section versus planned vaginal birth for breech presentation at term: A randomised multicentre trial. *Lancet* **2000**, *356*, 1375–1383, doi:10.1016/S0140-6736(00)02840-3.
35. Hofmeyr, G.J.; Hannah, M.; Lawrie, T.A. Planned caesarean section for term breech delivery. *Cochrane Database Syst. Rev.* **2015**, *2015*, doi:10.1002/14651858.CD000166.pub2.
36. Jennewein, L.; Kielland-Kaisen, U.; Paul, B.; Möllmann, C.J.; Klemt, A.S.; Schulze, S.; Bock, N.; Schaarschmidt, W.; Brüggmann, D.; Louwen, F. Maternal and neonatal outcome after vaginal breech delivery at term of children weighing more or less than 3.8 kg: A frabat prospective cohort study. *PLoS One* **2018**, *13*, V, doi:10.1371/journal.pone.0202760.
37. Morrison, S.; Ehrenberg, H. Planned Cesarean Section Versus Planned Vaginal Birth for Breech Presentation at Term: The Term Breech Tria. In *50 Studies Every Obstetrician-Gynecologist Should Know*; Michael Hochman, Ed.; Oxford Academic: New York, 2021.
38. Sananès, N. Breech Presentation: CNGOF Guidelines for Clinical Practice – Benefits and Risks for the Neonate and Child of Planned Vaginal Delivery versus Elective Cesarean Section. *Gynecol. Obstet. Fertil. Senol.* **2020**, *48*, 95–108, doi:10.1016/j.gofs.2019.10.023.
39. Cassidy, H.; Taylor, J.; Burton, A.E.; Owen, A. A qualitative investigation of experiences of breastfeeding twins and multiples. *Midwifery* **2024**, *135*, 104048, doi:10.1016/j.midw.2024.104048.
40. Whitford, H.M.; Wallis, S.K.; Dowswell, T.; West, H.M.; Renfrew, M.J. Breastfeeding education and support for women with twins or higher order multiples. *Cochrane Database Syst. Rev.* **2017**, *2*, CD012003, doi:10.1002/14651858.CD012003.pub2.
41. Cnattingius, S.; Johansson, S.; Razaz, N. Apgar Score and Risk of Neonatal Death among Preterm Infants. *N. Engl. J. Med.* **2020**, *383*, 49–57, doi:10.1056/nejmoa1915075.
42. Lau, Y.; Tha, P.H.; Ho-Lim, S.S.T.; Wong, L.Y.; Lim, P.I.; Citra Nurfarah, B.Z.M.; Shorey, S. An analysis of the effects of intrapartum factors, neonatal characteristics, and skin-to-skin contact on early breastfeeding initiation. *Matern. Child Nutr.* **2018**, *14*, e12492, doi:10.1111/mcn.12492.
43. Razaz, N.; Cnattingius, S.; Joseph, K.S. Association between Apgar scores of 7 to 9 and neonatal mortality and morbidity: Population based cohort study of term infants in Sweden. *BMJ* **2019**, *365*, 1–7, doi:10.1136/bmj.l1656.
44. Bryanton, J.; Montelpare, W.; Drake, P.; Drake, R.; Walsh, D.; Larter, K. Relationships Among Factors Related to Childbirth and Breastfeeding Outcomes in Primiparous Women. *J. Obstet. Gynecol. Neonatal Nurs.* **2020**, *49*, 437–451, doi:10.1016/j.jogn.2020.05.008.
45. Goldenberg, R.L.; Saleem, S.; Goudar, S.S.; Moore, J.; Guruprasad, G.; Kulkarni, V.; Dhaded, S.M.; Tikmani, S.S.; Nausheen, S.; Masheer, S.; et al. The PURPOSe cause of death study in stillbirths and neonatal deaths in India and Pakistan: A review. *BJOG An Int. J. Obstet. Gynaecol.* **2023**, *130*, 26–35, doi:10.1111/1471-0528.17635.
46. Ministerio de Sanidad Informe Anual del Sistema Nacional de Salud 2023; Madrid (Spain), 2023;

47. Saccone, G.; Berghella, V. Induction of labor at full term in uncomplicated singleton gestations: A systematic review and metaanalysis of randomized controlled trials. *Am. J. Obstet. Gynecol.* **2015**, *213*, 629–636, doi:10.1016/j.ajog.2015.04.004.
48. Sangskär, H.; Berglin, L.; Sengpiel, V.; Svanberg, T.; Svensson, M.; Berter, B.; Elden, H.; Sjögren, P.; Strandell, A.; Carlsson, Y. Safety, effectiveness, women's experience, and economic costs of outpatient induction in women with uncomplicated pregnancies: A systematic review and meta-analyses. *Int. J. Gynecol. Obstet.* **2023**, *161*, 343–355, doi:10.1002/ijgo.14625.
49. El Radaf, V.; Campos, L.N.; Savona-Ventura, C.; Mahmood, T.; Zaigham, M. Robson ten group classification system for Caesarean sections across Europe: A systematic review and meta-analysis. *Eur. J. Obstet. Gynecol. Reprod. Biol.* **2025**, *305*, 178–198, doi:10.1016/j.ejogrb.2024.11.052.
50. Dennis, C.L.; Shiri, R.; Brown, H.K.; Santos, H.P.; Schmied, V.; Falah-Hassani, K. Breastfeeding rates in immigrant and non-immigrant women: A systematic review and meta-analysis. *Matern. Child Nutr.* **2019**, *15*, 1–15, doi:10.1111/mcn.12809.
51. Gallegos, D.; Russell-Bennett, R.; Previte, J.; Parkinson, J. Can a text message a week improve breastfeeding? *BMC Pregnancy Childbirth* **2014**, *14*, doi:10.1186/s12884-014-0374-2.
52. Nolan, A.; Layte, R. The 'healthy immigrant effect': Breastfeeding behaviour in Ireland. *Eur. J. Public Health* **2015**, *25*, 626–631, doi:10.1093/eurpub/cku177.
53. Colombo, L.; Crippa, B.L.; Consonni, D.; Bettinelli, M.E.; Agosti, V.; Mangino, G.; Bezze, E.N.; Mauri, P.A.; Zanotta, L.; Roggero, P.; et al. Breastfeeding determinants in healthy term newborns. *Nutrients* **2018**, *10*, 5–8, doi:10.3390/nu10010048.
54. Gavine, A.; Shinwell, S.C.; Buchanan, P.; Farre, A.; Wade, A.; Lynn, F.; Marshall, J.; Cumming, S.E.; Dare, S.; McFadden, A. Support for healthy breastfeeding mothers with healthy term babies. *Cochrane Database Syst. Rev.* **2022**, *2022*, doi:10.1002/14651858.CD001141.pub6.
55. US Preventive Services Task Force Primary Care Behavioral Counseling Interventions to Support Breastfeeding. US Preventive Services Task Force Recommendation Statement. *JAMA - J. Am. Med. Assoc.* **2025**, *333*, 1520–1526, doi:10.1001/jama.2025.3650.
56. Patnode, C.D.; Senger, C.A.; Coppola, E.L.; Iacocca, M.O. Interventions to Support Breastfeeding Updated Evidence Report and Systematic Review for the US Preventive Services Task Force. *JAMA - J. Am. Med. Assoc.* **2025**, *333*, 1527–1537, doi:10.1001/jama.2024.27267.
57. Polit, D.F.; Beck, C. *Essentials of Nursing Research: Appraising Evidence for Nursing Practice*; 9th Editio.; Wolters Kluwer, 2017; ISBN 1496351290.
58. Grove, S.K.; Gray, J.R. *Understanding Nursing Research: Building an Evidence-Based Practice*; 8th Editio.; Elsevier, 2018; ISBN 0323826415.
59. Lin, M.; Lucas, H.C.; Shmueli, G. Too big to fail: Large samples and the p-value problem. *Inf. Syst. Res.* **2013**, *24*, 906–917, doi:10.1287/isre.2013.0480.
60. Vaske, J.J.; Beaman, J.; Miller, C.A. Practical application of a minimal important percent difference formulation of Cohen's d. *Hum. Dimens. Wildl.* **2023**, *29*, 269–283, doi:https://doi.org/10.1080/10871209.2023.2233544 Copy citation to clipboard.
61. Peng, C.J.; Lee, K.L.; Ingersoll, G.M. An Introduction to Logistic Regression Analysis and Reporting. *J. Educ. Res.* **2002**, *96*, 3–14, doi:https://doi.org/10.1080/00220670209598786.