

Exploring home births in Catalonia (Spain): A cross-sectional study of women's experiences and influencing factors

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Abstract

Aim: The study explores the experiences of women with low-risk pregnancies and no complications who planned a home birth.

Design: A cross-sectional study was conducted using an online questionnaire.

Methods: The questionnaire included socio-demographic, obstetric and perinatal variables. Birth satisfaction was evaluated via the Spanish version of the childbirth experience questionnaire. The study group comprised home-birthing women in Catalonia, Spain. Data were collected from 1 January 2019 to 31 December 2021. Statistical analysis was performed using SPSS.

Results: A total of 236 women responded. They reported generally positive experiences, with professional support and involvement being the most highly rated dimensions. Better childbirth experiences were associated with labour lasting less than 12 h, no perineal injuries, no intrapartum transfers to hospital, euthocic delivery and the presence of a midwife.

Conclusions: Women's positive home birth experiences were linked to active participation and midwife support. Multiparous women felt safer. Medical interventions, especially transfers to hospitals, reduced satisfaction, highlighting the need for improved care during home births.

Implications for the Profession and Patient Care: Home births should be included among the birthplace options offered by public health services, given the extremely positive feedback reported by women who gave birth at home.

Impact: Home birth is not an option offered under Catalonia's public health system only as a private service. The experience of home-birthing women is unknown. This study shows a very positive birth experience due to greater participation and midwife support. The results help stakeholders assess home birth's public health inclusion and understand valued factors, supporting home-birthing women.

Reporting Method: The study followed the STROBE checklist guidelines for cross-sectional studies.

Public Contribution: Women who planned a home birth participated in the pilot test to validate the instrument, and their contributions were collected by the lead researcher.

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The questionnaire gathered the participants' email addresses, and a commitment was made to disseminate the study's results through this means.

KEYWORDS

birth experience, birthplace, childbearing, home birth, midwifery, place of birth, women's health

1 | INTRODUCTION

High-quality, professionally provided healthcare services are crucial for women. It is essential to evaluate these services so they can be improved and tailored to meet women's needs (O'Brien et al., 2021; Olza et al., 2018). Childbirth stands out as one of the most significant events in a woman's life with both short- and long-term implications for her health. A crucial factor affecting the childbirth experience is the planned birth setting (Winter et al., 2022). In countries where home births are integrated into the national health service, such as Scandinavian countries and the Netherlands, women who opt to give birth at home report positive experiences related to the freedom to choose their companions, the intimacy and tranquillity, and the trust they have in themselves and their accompanying midwives (Hollander et al., 2019; Sjöblom et al., 2014).

In Spain, hospital is the predominant setting for childbirth; home births are not integrated into the public health system (Ortega Barreda et al., 2017). To our knowledge, there are no quantitative studies comparing women's experiences based on the birthing environment in the Spanish context. Consequently, it is crucial to evaluate what aspects contribute to a satisfying birth experience for women, regardless of where they give birth.

2 | BACKGROUND

Different authors have identified various elements related to childbirth experiences, such as the mother's individual factors (parity, experiences of female support during childbirth, cultural background and expectations of childbirth); interpersonal factors related to companions and healthcare professionals attending the birth, and factors related to the sense of control and perceived safety, both physically and emotionally (Chabbert et al., 2021; Leinweber et al., 2022; Vedeler et al., 2022).

Positive birth experiences are linked with the perception of control over the process, the presence of chosen companions during labour, pain relief and the care provided by healthcare professionals, with special consideration given to continuous support from midwives (Chabbert et al., 2021; Downe et al., 2018; Perdok et al., 2018).

Conversely, negative birth experiences are linked with labour induction (Place et al., 2022), medical or neonatal complications (Chabbert et al., 2021; Hosseini Tabaghdehi et al., 2019) and

the unnecessary medicalization of childbirth, which undermines a woman's confidence in her own birthing ability (World Health Organisation, 2018). A negative birth experience is associated with an increased likelihood of developing fear or anxiety during subsequent childbirth (Viirman et al., 2023), post-traumatic stress disorder (McKelvin et al., 2021), postpartum depression and difficulties in bonding with the newborn (attachment difficulties) (Grundström et al., 2022; Yildiz et al., 2017). Moreover, a negative experience might influence a woman's choices regarding future pregnancies, birth options and even the timing of further pregnancies (McKelvin et al., 2021; Shorey et al., 2018).

The planned birth setting also impacts the birth experience. Several studies have observed that women who planned a home birth had better experiences than women who chose to deliver in hospital. The home-birthing women's better experiences were linked to the factors already mentioned: a greater sense of control over the environment, the ability to make their own decisions about the process, continuous support from midwives, and a lower risk of unnecessary interventions or disruptions (Geerts et al., 2017; Gillen et al., 2023b; Hauck et al., 2020; Zielinski et al., 2015).

Among the elements that influence the experience of planned home birth, notable factors include increased accessibility to midwives, the ability to involve family members and comprehensive postpartum care (Janssen et al., 2009). Another aspect is the sense of security related to knowing the midwife or midwifery team beforehand and having confidence in their competence and personalized care (Quattrocchi, 2022; Sandall et al., 2016).

According to recent data, home births account for 1%–4% of all births in Europe, but the prevalence alters significantly from one country to another. For example, the Netherlands has a relatively high rate of home births at 16.3%, while Denmark, Germany and Belgium have lower rates (1.4%, 1.3% and 1.1% respectively) (Galková et al., 2022). The prevalence varies based on different healthcare systems, policies and cultural preferences in each country.

In Spain, planned home births are generally offered as a private service, provided by midwives (Ortega Barreda et al., 2017). Expectant mothers contact midwives specializing in home births and establish a contractual, care-based relationship, involving continuous support and assistance throughout pregnancy to postpartum, following a model of care continuity.

The Catalan Association of Home Birth Midwives (CAHMB) it is a scientific association, one of whose objectives is to conduct research on home birth, examining both maternal and neonatal

clinical outcomes, as well as women's experiences. CAHMB has 63 affiliated midwives, who provide care for both home births and births at the Migjorn Birthing Centre, a private facility in Barcelona, Spain. The Migjorn Birthing Centre is designed to provide the typical conditions and characteristics necessary for a home birth when a woman's usual residence does not meet the required criteria for a birth setting. Midwives affiliated with CAHMB follow a common set of guidelines endorsed by scientific societies, and their statutes mandate recording birth data in a shared database (Alcaraz-Vidal et al., 2021). The establishment of such guidelines and data-recording procedures ensures that the care provided by CAHMB midwives adheres to standard practices and allows the collection of valuable information for research and continuous improvement in the field of home births and care of the birth centre (Alcaraz-Vidal et al., 2018).

According to Spain's National Institute of Statistics, there were 815 home births attended by healthcare personnel in Spain in 2019, comprising 0.22% of all births that year (Instituto Nacional de Estadística, 2023). Of these, 37.4% (305 of 815) were recorded in Catalonia; of the Catalan home births, 80.9% (247 of 305) were attended by CAHMB midwives (Instituto Nacional de Estadística, 2023).

However, data on whether or not these home births were planned in advance are not available, as the INE does not collect information on intended birth settings. Similarly, it is not known how many intended home births eventually delivered in hospital (Alcaraz-Vidal et al., 2021).

The lack of specific data on planned and actual birth settings highlights the need for more comprehensive and standardized data collection in the field of home births to better understand and assess the results and experiences of women who choose this birth option in Spain.

3 | THE STUDY

3.1 | Aim

The study's main objective was to explore the birth experiences of women with low-risk obstetric pregnancies and no associated complications who planned a home birth in Catalonia.

4 | METHODS

4.1 | Design

This cross-sectional study sampled women who planned a home birth from 1 January 2019 to 31 December 2021. Participants completed the Spanish version of the childbirth experience questionnaire (CEQ-E) retrospectively, between 1 and 3 months after giving birth.

4.2 | Study setting and sampling

The population was defined as women who wanted a planned home birth and were accepted after an initial evaluation, conducted by the midwives who would monitor the pregnancy and attend the birth. During the first home postpartum appointment, signed informed consent forms and personal contact information for further follow-up appointments were obtained from candidates who were willing to participate. The signed informed consent forms, along with the women's data, were sent by the midwives to the study's principal investigator.

A sample size of 214 participants was determined using the EPIDAT 3.1 statistical programme to estimate a proportion with the following assumptions: a total of 700 births in the 2 years of follow-up, an 80% attendance rate, a 95% confidence level, 5% precision and an expected proportion of losses of 15% dropout rate.

4.3 | Inclusion criteria

Convenience sampling was used, with the following inclusion criteria: (i) expectant mothers who could speak either Spanish and/or English, (ii) low-risk obstetric, (iii) singleton pregnancy and (iv) in the cephalic presentation.

4.4 | Validity, reliability and rigour

The study collected the following data: the participants' socio-demographic information (age, level of education, country of origin, ethnicity and parity); variables related to childbirth (gestational age, type of birth, intrapartum transfers, pain rating using a numerical scale, use of non-pharmacological analgesia measures and duration of labour); maternal morbidity variables (perineal tear, episiotomy and admission to the intensive care unit) and neonatal variables (Apgar score, baby's weight, type of feeding in the first month and admission to the neonatal intensive care unit [NICU]).

The duration of labour was defined as the time, in hours, that elapsed from the active phase of labour to the third stage of labour.

The type of feeding in the first month was classified as (i) exclusive breastfeeding (including expressed milk and/or milk from a donor) (Vila-Candel et al., 2021; Winkvist et al., 2015), (ii) exclusive formula feeding or (iii) mixed if the baby's diet combined breastmilk and formula. The breastfeeding status was recorded at the same time the women completed the questionnaire (between the first and third month postpartum).

4.5 | Numerical pain scale

Pain was assessed using a numerical pain intensity scale ranging from 0 to 10 (Nugent et al., 2021), where 0 represents no pain and

10 represents the worst pain imaginable. This item corresponds to Item 20 on the CEQ-E.

4.6 | Degrees of perineal injury

Perineal tears were classified as follows: first-degree tears involve injury to the skin only. Second-degree tears involve injury to the skin and perineal muscles but not the anal sphincter. Third-degree tears involve injury to the skin, perineal muscles and anal sphincter (subtypes A, B and C depend on the degree of involvement of the external and internal anal sphincters). Finally, fourth-degree tears involve perineal lesions that affect both the sphincters and the anal mucosa (Sultan et al., 2008).

4.7 | Childbirth experience questionnaire—Spanish version

There are various validated instruments for assessing childbirth experiences across different dimensions. Of these, the CEQ has demonstrated higher validity than other tools (Nilvér et al., 2017). The Spanish version of the CEQ, known as the CEQ-E, was validated by Soriano-Vidal et al. (2016). While there is no specific instrument that addresses home birthing specifically, in previous studies conducted in other countries, researchers have used this questionnaire to measure satisfaction with planned home births (Handelzalts et al., 2016).

The CEQ-E screening tool was self-administered and typically took approximately 5–10 min to complete. The questionnaire comprises 22 items related to the birth experience, categorized into four domains: self-capacity, perceived safety, professional support and participation. The first 19 items are rated on a 4-point Likert scale, enabling the assessment of each item based on the woman's level of agreement, ranging from strongly agree to strongly disagree.

The last three items measure the remembered sense of pain, control and safety during the birth and are captured using a 4-point visual scale, which is then converted into categorical values ranging from 0 to 100.

The final score ranges between one and four and is calculated following the initial version of the CEQ's guidelines. The CEQ-E demonstrated high reliability, with a Cronbach's alpha of 0.88.

4.8 | Data collection

Participants completed the online questionnaire. A pilot test was conducted beforehand with 10 women to assess the feasibility of administering the questionnaire in a non-clinical environment; there were no doubts about its applicability. Participants were recruited by the CAHMB midwives using convenience sampling. All the women who were informed about the study chose to participate and provided their consent by signing the consent form. The questionnaire link was sent to them by email 30 days after they gave birth.

Data were collated in an anonymized database that was periodically reviewed. The attending midwives contacted the research midwife each time a woman agreed to participate in the study, and the research midwife was responsible for sending the questionnaire link, reviewing the CEQ-E's completion, cleaning the data and ensuring anonymity.

4.9 | Statistical analysis

The data analysis involved employing basic descriptive methods to calculate means and standard deviation (SD) for continuous variables, or medians and interquartile ranges (IQRs) for non-normally distributed variables. Categorical variables were summarized using absolute and relative frequencies. The normality assumption of the dependent quantitative variable, birth experience (CEQ-E), was assessed using the Kolmogorov–Smirnov goodness-of-fit test.

Due to the non-normal distribution of the CEQ-E variable, the Mann–Whitney U test was utilized to compare the medians between this variable and the categorical variables in two independent groups. We analysed the obstetric variables between women intrapartum transferred to hospital via 2 × 2 tables and the chi-squared test (χ^2) for qualitative variables. For categorical variables with more than two groups, the Kruskal–Wallis test was applied.

The scores of each item in the CEQ-E were added or subtracted according to the authors' instructions to obtain a total score. A higher score indicates a better experience.

Data analysis was performed using the SPSS v.28.1 statistical package (IBM Corp. Released 2018. IBM SPSS Statistics for Windows, Armonk, NY, USA). Statistical significance was considered when $p < .05$.

4.10 | Ethical considerations

The study adhered to the Declaration of Helsinki's recommendations and was approved on 10 October 2018 by the clinical research ethics review board of Ethics Committee for Drug Research, Parc de Salut Mar (study registration number #2018/8120/I).

All the participants were fully informed about the study, its voluntary nature and confidentiality. The research team recruited women at home in person and written informed consent was obtained in all cases. Anonymity and confidentiality were guaranteed.

5 | RESULTS

5.1 | Sample characteristics

A total of 223 surveys were completed during the 2-year study period, resulting in an overall survey response rate of 100%.

Table 1 shows the socio-demographic, obstetric and neonatal characteristics of the participants. Most of the women are Caucasian,

TABLE 1 Demographic, obstetrical and neonatal characteristics (N = 223).

Demographic	N	%
Maternal age		
18–29	23	10.3
30–39	167	74.9
>40	33	14.8
Country of origin		
Spain	198	88.8
Foreign	25	11.2
Educational level		
Non-university	36	16.1
University	187	83.9
Lives in couple		
Yes	220	98.7
No	3	1.3
Ethnicity		
Caucasic	215	96.4
Other	8	3.5
Parity		
Nulliparous	87	39.0
Multiparous	136	61.0
Obstetrical		
Planned place of birth		
Home birth	206	92.4
Birth centre	17	7.6
Gestational age at birth*		
<37	5	2.3
37–42	211	95.0
>42	6	2.7
Duration of labour (h)		
<12h	162	72.6
>12h	61	27.4
Water immersion		
Yes	132	59.2
No	91	40.8
Nitrous oxide use		
Yes	2	0.9
No	221	99.1
Epidural		
Yes	22	9.9
No	201	90.1
Non-pharmacological measures		
Yes	174	82.1
No	38	17.9
Intrapartum oxytocin use		
Yes	19	9.0
No	193	91.0

(Continues)

TABLE 1 (Continued)

Demographic	N	%
Postpartum oxytocin use		
Yes	33	15.9
No	175	84.1
Perineal injury		
Yes	120	53.8
No	103	46.2
Type of perineal injury		
Intact	103	46.2
I degree	63	28.3
II degree	44	19.7
III degree	3	1.3
IV degree	2	0.9
Episiotomy	8	3.6
End of labour		
Euthocic	208	93.3
Instrumental	8	3.6
C-section	7	3.1
Intrapartum transfer to hospital		
Yes	27	12.1
No	196	87.9
Neonatal		
Birth weight (g)		
<2500	2	0.9
2500–4000	205	91.9
>4000	16	7.2
Apgar <7 at 5 min		
Yes	16	8.2
No	178	91.8
Type of breastfeeding at 1 month		
Exclusive breastfeeding	202	95.7
Mixed breastfeeding	9	4.3
NICU admission		
Yes	2	0.9
No	221	99.1

*One missing value (N = 222).

of Spanish origin, multiparous, live with a partner and have a university education. Approximately 75% of the participants were aged between 30 and 39 years, with a mean age of 34.6 years (4.0).

Regarding birth plans, 92% of women intended to give birth at home. Most of the births were full term; the 2.3% of births were between 36 and 37 weeks. The duration of labour varied widely, but approximately 73% of the women's labours lasted less than 12h. The sample's self-reported pain levels ranged from zero to 10, with a median of nine.

During labour, 59% of women were immersed in water. The majority opted for non-pharmacological pain relief, with only 0.9% choosing nitrous oxide and 9.9% opting for epidural analgesia.

Most of the respondents' births were simple and no oxytocin nor other medications were used during labour or postpartum. Perineal injury occurred in more than half of the births, with slightly more than 2% experiencing second- to fourth-degree tears, and 3.6% undergoing episiotomies. A total of 12% (27 of 223) were transferred to hospital during labour.

Regarding neonatal characteristics, most of the newborns weighed between 2500 and 4000 g (median: 3459 g) and had an Apgar score greater than seven at 5 min after birth. Furthermore,

no newborns required admission to the NICU, and 95.7% were exclusively breastfed.

Quantitative analysis of the variables related to birth experience was performed. In general, the respondents rated their birth experiences positively, with a mean score of 3.5 (0.3). Of the dimensions assessed, professional support received the highest rating, with a mean score of 3.9 (0.3), followed closely by participation, with a mean score of 3.7 (0.5) (see Table 2). Contrastingly, own capacity received a low rating, with a mean score of 3.0 (0.4).

TABLE 2 Overall CEQ-E score (N=223).

	N	Minimum	Maximum	Mean	SD
Own capacity	223	1.50	3.88	3.0	0.4
Professional support	223	2.00	4.00	3.9	0.3
Perceived safety	223	1.67	4.00	3.3	0.3
Participation	223	1.33	4.00	3.7	0.5
Total CEQ	223	1.72	3.91	3.5	0.3

	Item number	N	Minimum	Maximum	Mean	SD
Own capacity						
Labour and birth went as I had expected	1	223	1	4	3.4	0.8
I felt strong during labour and birth	2	223	1	4	3.6	0.6
I felt capable during labour and birth	4	223	1	4	1.8	1.0
I was tired during labour and birth	5	223	1	4	2.7	1.0
I felt happy during labour and birth	6	223	1	4	3.5	0.7
I felt that I handled the situation well	19	223	2	4	3.7	0.5
As a whole how painful did you feel your childbirth was? (visual pain scale, VPS)	20	223	1	4	2.3	1.1
As a whole how much control did you feel you had during childbirth? (VPS)	21	223	1	4	3.2	1.1
Professional support						
My midwife devoted enough time to me	13	223	2	4	3.9	0.2
My midwife devoted enough time to my partner	14	223	1	4	3.8	0.4
My midwife kept me informed about what was happening during labour and birth	15	223	1	4	3.8	0.5
My midwife understood my needs	16	223	2	4	3.9	0.3
I felt very well cared for by my midwife	17	223	2	4	3.9	0.3
My impression of the team's medical skills made me feel secure	18	223	2	4	3.9	0.3
Perceived safety						
I felt scared during labour and birth	3	223	1	4	1.6	0.8
I have many positive memories from childbirth	7	223	1	4	3.7	0.6
I have many negative memories from childbirth	8	223	1	4	3.7	0.6
Some of my memories from childbirth make me feel depressed	9	223	1	4	3.6	0.8
As a whole how secure did you feel during childbirth? (VAS)	22	223	1	4	3.6	0.9
Participation						
I felt I could have a say whether I could be up and about or lie down	10	223	1	4	3.9	0.4
I felt I could have a say in deciding my birthing position	11	223	1	4	3.7	0.8
I felt I could have a say in the choice of pain relief	12	223	1	4	3.7	0.7

Perceived safety was the lowest-rated dimension, with a mean score of 3.3 (0.0).

The Mann-Whitney U test revealed significant differences between the women who transferred to hospital during labour and those who did not; the women who experienced intrapartum transfer gave lower scores across all the dimensions. These findings evince that intrapartum transfer is associated with notable differences in the variables evaluated, as summarized in Table 3.

Table 4 presents a comparison of the obstetric variables of the women who experienced intrapartum transfer and those who gave birth at home. The analysis reveals several statistically significant variables associated with intrapartum transfer. Namely, labour duration exceeding 12 h, the use of nitrous oxide or epidural anaesthesia, intrapartum administration of oxytocin, dystocic birth, postpartum use of oxytocin, perineal injury and the absence of a midwife's assistance were all significantly related to higher rates of intrapartum transfer.

On the other hand, variables, such as immersion in water during labour, an Apgar score below 75 min after birth, NICU admission and the type of feeding in the first month did not show significant associations with intrapartum transfer. These findings shed light on the factors that play a crucial role in determining the likelihood of intrapartum transfer during childbirth.

5.2 | Obstetric variables related to the CEQ-E

Our objective was to perform a bivariate analysis to investigate the association between birth experience (considered the dependent variable) and other categorical variables of clinical interest collected

in the study. The findings are presented in Table 5, which specifically focuses on the CEQ-E.

The results revealed significant differences, indicating more positive birth experiences in certain scenarios. Specifically, better birth experiences are associated with labour lasting less than 12 h ($p < .001$), the absence of perineal injuries ($p = .018$), no intrapartum transfer to hospital ($p < .001$), euthocic labour and delivery ($p < .001$) and the presence of a midwife during the birth ($p < .001$).

However, no statistically significant differences were found between the birth experience and immersion in water during labour ($p = .556$), the use of non-pharmacological pain relief measures ($p = .765$), postpartum oxytocin administration ($p = .150$), neonatal Apgar scores < 7 at 5 min after birth ($p = .887$) and the type of feeding ($p = .606$).

Regarding perineal injury, which ranges from intact perineum, first- to fourth-degree tears and episiotomy, statistically significant differences were observed concerning the type of injury ($p < .001$). Upon comparison of the groups, it was found that women with an intact perineum had a significantly better birth experience compared to those who underwent an episiotomy ($p < .001$). Moreover, women who experienced tears during childbirth reported a more favourable experience than those who had an episiotomy ($p = .006$).

5.3 | CEQ-E and parity

Table 6 provides the item descriptions and statistical results of the CEQ-E for both nulliparous and multiparous women. The items are grouped into four domains: own capacity, professional support, perceived safety and participation.

TABLE 3 Comparison of childbirth experience (CEQ-E) between intrapartum-transferred women and home birth ($N = 223$).

		N	Mean	SD	SE	CI 95%		Average rank	Sum of ranks	p-value
						Lower limit	Upper limit			
Own Capacity	Yes	27	2.5	0.5	0.09	2.3	2.7	48.2	1301.5	<.001
	No	196	3.1	0.4	0.03	3	3.1	120.79	23674.5	
	Total	223	3	0.4	0.03	2.9	3.1			
Professional support	Yes	27	3.6	0.6	0.11	3.4	3.8	91.13	2460.5	.014
	No	196	3.9	0.2	0.01	3.8	3.9	114.88	22515.5	
	Total	223	3.9	0.3	0.02	3.8	3.9			
Perceived safety	Yes	27	2.9	0.5	0.09	2.7	3	39.74	1073	<.001
	No	196	3.4	0.3	0.02	3.4	3.4	121.95	23903	
	Total	223	3.3	0.3	0.02	3.3	3.4			
Participation	Yes	27	3	0.8	0.15	2.7	3.3	50.63	1367	<.001
	No	196	3.8	0.3	0.02	3.8	3.9	120.45	23609	
	Total	223	3.7	0.5	0.03	3.7	3.8			
Total CEQ-E	Yes	27	3	0.4	0.08	2.8	3.2	30.15	814	<.001
	No	196	3.6	0.2	0.01	3.5	3.6	123.28	24162	
	Total	223	3.5	0.3	0.02	3.5	3.5			

Abbreviations: CI 95%, confidence interval 95%; SD, standard deviation; SE, standard error.

TABLE 4 Comparison of obstetric variables between intrapartum transferred (N=223).

		Intrapartum transfer to hospital				p-value*
		Yes		No		
		n	%	n	%	
Duration of Labour (h)	<12h	6	22.2	156	79.6	.001
	>12h	21	77.8	40	20.4	
Water immersion	Yes	19	70.4	113	57.7	.207
	No	8	29.6	83	42.3	
Nitrous oxide use	Yes	2	7.4	0	0.0	.001
	No	25	92.6	196	100.0	
Epidural use	Yes	22	81.5	0	0.0	.001
	No	5	18.5	196	100.0	
Non-pharmacological measures	Yes	24	88.9	150	81.1	.323
	No	3	11.1	35	18.9	
Intrapartum oxytocin use	Yes	19	70.4	0	0.0	<.001
	No	8	29.6	185	100.0	
End of labour	Euthocic	12	44.4	196	100.0	<.001
	Dystocic	15	55.6	0	0.0	
Postpartum oxytocin use	Yes	9	39.1	24	13.0	.001
	No	14	60.9	161	87.0	
Perineal injury	Yes	19	70.4	101	51.5	.066
	No	8	29.6	95	48.5	
Type of perineal injury	Intact	8	29.6	95	48.5	<.001
	I degree	6	22.2	57	29.1	
	II degree	7	25.9	37	18.9	
	III degree	0	0.0	3	1.5	
	IV degree	0	0.0	2	1.0	
	Episiotomy	6	22.2	2	1.0	
Midwife assists birth	Yes	14	51.9	196	100.0	<.001
	No	13	48.1	0	0.0	
Apgar <7 at 5 min	Yes	0	0.0	16	9.3	.135
	No	22	100.0	156	90.7	
NICU admission	Yes	1	3.7	1	0.5	.099
	No	26	96.3	195	99.5	
Type of breastfeeding at 1 month	EBF	26	96.3	176	95.7	.877
	Mixed BF	1	3.7	8	4.3	

Abbreviations: BF, Breastfeeding; EBF, exclusive breastfeeding; NICU, neonatal intensive care unit.

*Chi-squared test (χ^2).

In terms of their own capacity, both nulliparous and multiparous women expressed satisfaction with their abilities during labour and birth. Nulliparous women reported higher levels of tiredness ($p < .001$), while multiparous women felt happier ($p = .013$) and more confident in handling the birth ($p = .034$). Similarly, multiparous women perceived childbirth to be less painful compared to nulliparous women ($p = .043$).

Regarding professional support, both groups reported high levels of satisfaction with the support provided by their midwives. Multiparous women perceived greater care ($p = .042$) and support

($p = .019$). Additionally, they felt that their midwives dedicated more time to their partners ($p = .045$).

Concerning the perceived safety, both nulliparous and multiparous women reported similar levels of fear during labour and birth. However, multiparous women had more positive memories ($p = .031$) of childbirth and fewer negative memories ($p = .04$). Both groups reported low levels of feeling depressed due to memories of childbirth, with mean scores of 3.4 and 3.7 respectively ($p = .019$).

Lastly, regarding participation, multiparous women felt more empowered to make decisions about their birthing position and

TABLE 5 CEQ-E score related to obstetrical and neonatal variables (N=223).

	N	n	Mean	SD	Average rank	Mann Whitney U	Kruskal-Wallis	p-value	df
Duration of labour (h)	223							<.001	—
<12h		162	3.56	0.19	123.32	3.107.00			
>12h		61	3.33	0.41	81.93				
Water immersion	223							.556	—
Yes		132	3.49	0.27	109.89	6.284.50			
No		91	3.51	0.31	115.06				
Non-pharmacological measures	212							.765	—
Yes		174	3.49	0.31	107.09	3.203.50			
No		38	3.5	0.22	103.8				
Postpartum oxytocin use	208							.150	—
Yes		33	3.43	0.33	90.68	3.343.50			
No		175	3.53	0.22	107.11				
Perineal injury	223							.018	—
Yes		120	3.47	0.29	102.57	7.312.00			
No		103	3.53	0.28	122.89				
Type of perineal injury	223							<.001	2
Intact		103	3.54	0.28	125.18		17.461		
Episiotomy		8	3.13	0.30	32.94				
Injury		112	3.49	0.28	105.52				
Intrapartum transfer	223							<.001	—
Yes		27	3.01	0.44	30.15	4.856.00			
No		196	3.56	0.18	123.28				
End of labour	223							<.001	—
Euthocic		208	3.54	0.24	118.43	222			
Dystocic		15	2.95	0.37	22.8				
Birth weight	223							.272	—
<3400		97	3.52	0.25	117.40	5587.0			
>=3400		126	3.48	0.32	107.84				
Apgar <7 at 5 min	194							.887	—
Yes		16	3.52	0.22	99.41	15.395			
No		178	3.5	0.30	97.33				
Type of breastfeeding	211							.606	—
Mixed BF		9	3.51	0.18	95.72	816.5			
EBF		202	3.49	0.30	106.46				
Midwife assists birth	223							<.001	—
Yes		210	3.53	0.24	117.69	170.5			
No		13	2.94	0.38	20.12				

Abbreviations: BF, Breastfeeding; df, degrees of freedom; EBF, exclusive breastfeeding; SD, standard deviation.

mobility during labour than nulliparous women ($p=.011$ and $p=.011$ respectively). Both groups reported a sense of participation in the choice of pain relief methods, with no statistically significant difference observed.

The analysis of perceived safety indicates that participants, regardless of parity, felt generally safe during labour and birth. They

reported low levels of fear, positive and negative memories, and feelings of depression associated with childbirth. The findings suggest that the respondents perceived childbirth as a relatively safe and secure event.

The analysis of domain scores in Table 7 reveals significant differences between nulliparous and multiparous women. In the own

TABLE 6 Childbirth experience questionnaire (CEQ-E) item description by parity (N = 223).

	Nulliparous (n = 87)					Multiparous (n = 136)				
	Item number	Mean	Median	SD	IQR	Mean	Median	SD	IQR	p-value*
Own capacity										
Labor and birth went as I had expected	1	3.2	4	1	1	3.5	4	0.7	1	.065
I felt strong during labour and birth	2	3.6	4	0.6	1	3.6	4	0.6	1	.694
I felt capable during labour and birth	4	1.7	1	0.9	1	1.8	1	1	1	.413
I was tired during labour and birth	5	1	2	0.9	1	3	3	0.9	2	<.001
I felt happy during labour and birth	6	1.5	1.3	0.3	0.5	1.6	1.8	0.3	0.5	.013
I felt that I handled the situation well	19	3.6	4	0.6	1	3.8	4	0.5	0	.034
As a whole how painful did you feel your childbirth was? (visual analogue scale, VAS)	20	2.1	2	1	2	2.4	2	1.1	1.8	.043
As a whole how much control did you feel you had during childbirth? (VAS)	21	3.1	3	1	2	3.2	4	1.1	1	.148
Professional support										
My midwife devoted enough time to me	13	3.9	4	0.3	0	4	4	0.1	0	.019
My midwife devoted enough time to my partner	14	3.8	4	0.5	0	3.9	4	0.4	0	.045
My midwife kept me informed about what was happening during labour and birth	15	3.8	4	0.5	0	3.8	4	0.5	0	.768
My midwife understood my needs	16	3.8	4	0.4	0	3.9	4	0.2	0	.074
I felt very well cared for by my midwife	17	3.9	4	0.4	0	4	4	0.2	0	.042
My impression of the team's medical skills made me feel secure	18	3.9	4	0.3	0	4	4	0.2	0	.043
Perceived safety										
I felt scared during labour and birth	3	1.6	1	0.7	1	1.6	1	0.9	1	.437
I have many positive memories from childbirth	7	3.6	4	0.7	1	3.8	4	0.4	2	.031
I have many negative memories from childbirth	8	3.5	4	0.8	1	3.8	4	0.5	0	.04
Some of my memories from childbirth make me feel depressed	9	3.4	4	1	1	3.7	4	0.7	0	.019
As a whole how secure did you feel during childbirth? (VAS)	22	3.6	4	0.8	0	3.5	4	1	0	.956
Participation										
I felt I could have a say whether I could be up and about or lie down	10	3.8	4	0.6	0	3.9	4	0.3	0	.011
I felt I could have a say in deciding my birthing position	11	3.5	4	1	1	3.8	4	0.6	0	.011
I felt I could have a say in the choice of pain relief	12	3.6	4	0.8	1	3.7	4	0.6	1	.856

Note: Higher CEQ-E scores represent more positive experiences; Both mean and median numbers shown since some variables are distributed normally and some are not.

Abbreviations: IQR, Interquartile range; SD, Standard deviation.

*Kruskal-Wallis test.

capacity domain, nulliparous women had a mean score of 2.9 (0.5), while multiparous women had a mean score of 3.1 (0.4), indicating a higher perception of their own capacity among multiparous women ($p < .001$).

Regarding professional support, both groups reported high satisfaction, with nulliparous women scoring 3.8 (0.4) and multiparous women scoring 3.9 (0.2) on average, with no significant difference between the groups ($p = .29$).

TABLE 7 Childbirth experience questionnaire (CEQ-E) by parity domain scores (N=223).

	Nulliparous n=87				Multiparous n=136				p-value*
	Mean	Median	SD	IQR	Mean	Median	SD	IQR	
Own capacity	2.9	2.9	0.5	0.8	3.1	3.1	0.4	0.5	<.001
Professional support	3.8	4	0.4	0.2	3.9	4	0.2	0	.290
Perceived safety	3.3	3.5	0.4	0.5	3.4	3.5	0.2	0.2	.077
Participation	3.6	4	0.6	0.7	3.8	4	0.4	0.3	.127
Total CEQ	3.4	3.5	0.4	0.4	3.6	3.6	0.2	0.3	.001
Numbers of items responded to	22	22	0	0	22	22	0	0	

Note: Both mean and median numbers shown since some variables are distributed normally and some are not.

Abbreviations: IQR, Interquartile range; SD, Standard deviation.

*Student's *t*-test.

In the perceived safety domain, nulliparous women had a mean score of 3.3 (0.4), and multiparous women had a mean score of 3.4 (0.2), showing a slightly higher perception of safety among multiparous women, but the difference was not statistically significant ($p = .077$).

Similarly, in the participation domain, nulliparous women scored 3.6 (0.6), and multiparous women scored 3.8 (0.4) on average, with no significant differences between the two groups ($p = .127$).

Regarding the total CEQ score, nulliparous women had a mean score of 3.4 (0.4), while multiparous women had a higher mean score of 3.6 (0.2), indicating a more positive overall birth experience among multiparous women ($p = .001$). Both groups responded to the same number of items, and all the participants completed the 22 items on the questionnaire.

6 | DISCUSSION

This study aimed to analyse the birth experiences of women who planned to give birth at home. The results indicate that the majority of women who planned to have a home birth had positive birth experiences. The average score of 3.6 of 4 demonstrates that most women positively rated all dimensions of the scale. This score is significantly higher than those found in other studies that used the same scale to measure birth experiences in hospital settings in Spain (González-de la Torre et al., 2021; Roqueta Vall-Iloera, 2022) or with different interventions such as oxytocin stimulation or induced labour (Boie et al., 2020; Selin et al., 2021). This discrepancy can be attributed to differences in the healthcare model, consistent with other findings (Forster et al., 2016). In Catalonia, midwives providing care for home births follow a comprehensive model that encompasses prenatal, intrapartum and postpartum care, provided by a primary midwife with the support of another known midwife when necessary. Additionally, since it is a private service, women planning home births make a conscious decision about the place of birth and the team of midwives who will attend to them. In contrast, hospital births are offered as a public service that most women default to for giving birth. In this case, they are attended by a team

of midwives and obstetricians who have not previously known the birthing process. We believe that the trust and professional relationship established during the pregnancy, coupled with meeting their previous expectations, can significantly impact the birthing experience, and explain the differences observed, in line with other studies (Benet et al., 2020).

The professional support domain received the highest score (3.9 of 4), which is consistent with the woman-centred model of care continuity that has been shown to positively impact the birth experience provided by home birth midwives (Hildingsson et al., 2020; Perdok et al., 2018; World Health Organisation, 2018) in line with other authors (Boie et al., 2020; Handelzalts et al., 2016; Roqueta Vall-Iloera, 2022; Selin et al., 2021).

The holistic perspective that home birth midwives embody explains the high score in the participation domain (3.7/4). Encouraging the labouring mother to move freely and offering alternative pain relief methods that enhance women's own birthing capabilities are intrinsic aspects of home birth support (de Jonge et al., 2021; Magistretti et al., 2016). This score was considerably higher than the one obtained in a study conducted in a hospital in the same region (3.7 vs. 3.0) where the results showed that a high percentage of women could not choose their birthing position, felt restricted in their ability to move freely and had limited options for pain relief (Roqueta Vall-Iloera, 2022).

Women who transferred to hospital intrapartum obtained a lower score in the CEQ-E. For women planning a home birth in Spain, a transfer to the hospital implies a loss of continuity of care from their midwives and an increased likelihood of birth interventions. Although this study did not document the reasons for transfer (Alcaraz-Vidal et al., 2021), describe the most common causes as the need for pharmacological analgesia and stalled labour. Both reasons are associated with long labour and a higher likelihood of dystocic birth, which, in turn, are related to lower CEQ scores (Dencker et al., 2010; Handelzalts et al., 2016; Hildingsson et al., 2020; Selin et al., 2021). The change in expectations, uncertainty and fear lead to a loss of control over the process and a worse birth experience, as indicated by other authors (Fox et al., 2018; Gaudernack et al., 2020; Gillen et al., 2023b;

Handelzalts et al., 2017; Sosa et al., 2018; van Stenus et al., 2017). That said, some authors did not find that women who were transferred during childbirth had worse birth experiences (Forster et al., 2018; Gillen & Clausen, 2018). However, it should be noted that professional support was the highest-rated dimension of women who were transferred (3.6 of 4), which is also associated with a better birth experience despite transfer (Gillen et al., 2023a; Sosa et al., 2018).

In general, these findings concur with the hypothesis that a planned home birth results in a positive birth experience in itself and a better experience than a hospital birth, as suggested by other studies (Gregory et al., 2023; Handelzalts et al., 2016).

Another result impacting the birth experience is perineal trauma. Women with an intact perineum and those who experienced a tear had a better experience than those who underwent an episiotomy. These results are consistent with those published by other authors (González-de la Torre et al., 2021; Maskálová et al., 2021; Soriano-Vidal et al., 2023) and are consistent with the hypothesis that more interventions during birth are associated with a worse experience (World Health Organisation, 2018).

It should be noted that the median perceived pain level was 9 of 10, and yet the current study's participants generally considered their birth experiences to be positive. Although our study did not find differences in the CEQ-E scores of women who used non-pharmacological analgesia measures, other authors (Zhu et al., 2019) have observed a higher CEQ score in women who used non-pharmacological measures or no analgesic measures compared to women who had an epidural. These authors explain that in Chinese culture, pain during childbirth is accepted, and there is no universal access to epidural analgesia. An analogy can be made with women who choose to give birth at home. Pain during childbirth is an inherent part of the process. Home-birthing women embrace and work with the pain rather than seek to eliminate it (Thies-Lagergren et al., 2021). Therefore, while it is true that when the pain of childbirth is not acknowledged, supported and relieved, it can result in suffering and a negative birth experience (McKelvin et al., 2021), when women are accompanied and supported throughout the process, the pain is not perceived as suffering but as part of a transformative and empowering experience (Donate-Manzanares et al., 2021; Thies-Lagergren et al., 2021; van Haaren-ten Haken et al., 2018).

More than half of the women used warm water immersion for pain relief, although, in our study, this measure was not associated with a higher CEQ-E score for the *own capacity* dimension nor with a lower perception of pain. This result is in contrast with other authors' results (Lathrop et al., 2018; Ulfsdottir et al., 2019); they found higher CEQ scores among women who had water births in hospital. The general experience of home-birthing women includes various aspects that are positively valued and contribute to a positive perception of the experience. However, in our study, water immersion was not evaluated in isolation.

Labour lasting less than 12h also resulted in a better score both on the CEQ and CEQ-E scales, aligning with findings from other studies (Dencker et al., 2010; Maskálová et al., 2021; Soriano-Vidal

et al., 2016). Other authors have stated that a labour lasting longer than 12h is associated with a negative birth experience (Carlhäll et al., 2022; Gaudernack et al., 2020). It should be noted that although the timing of birth is not as crucial at home as it is in a hospital setting, a longer labour at home is often associated with intrapartum transfer to hospital for pharmacological analgesia or to address stalled labour (van Haaren-ten Haken et al., 2018). On the contrary, other studies (Fenaroli et al., 2019; Turkmen et al., 2018) yielded different results, showing no relationship between shorter labours and a better birth experience. This discrepancy could be attributed to the study population consisting of nulliparous women and the differentiation of labour times based on the phases of labour.

Nulliparous women in the current study generally reported a less positive birth experience, particularly in the *own capacity* domain, than multiparous respondents. Nulliparous women's birth experiences were characterized by fatigue, pain and a decreased sense of control. This observation may be related to longer labours, a higher incidence of intrapartum transfer to hospital, more interventions (such as the use of epidurals), dystocic births and episiotomies. Similar to other studies (Hildingsson et al., 2020; Soriano-Vidal et al., 2016; Zhu et al., 2019), in our study, multiparous women reported an overall better birth experience. They expressed greater confidence in managing the birth process, experienced less pain and perceived more support and trust in their abilities from midwives. However, it should be noted that our results diverge from those of other authors where no significant differences were found with respect to birth experience and parity (Roqueta Vall-Ilosera, 2022).

6.1 | Strengths and limitations

Our study has some limitations. The women comprising the sample were not randomly selected. Due to the nature of the study, causal relationships cannot be established, and the results cannot be extrapolated to the rest of Spain. However, the high response rate indicates a strong commitment from women to the research on home birth, reducing the potential bias of representation.

It is important to highlight that this study's results apply to a specific region since healthcare is decentralized in Spain, meaning each region has its own public healthcare management, and there are no standardized national clinical practice guidelines for obstetric services in general or home births in particular. The Home Birth Assistance Guide, developed by the CAHMB midwives in Catalonia, provides a common care model and clinical practice guidelines, but only for their organization. A common protocol helps to mitigate potential bias from the variability in practice typically associated with private healthcare in Spain.

6.2 | Recommendations for further research

It would be interesting to explore home-birthing women's experiences using qualitative methodology, which would allow for an

in-depth exploration of the motivations behind their decision to opt for a home birth.

6.3 | Implications for practice

Home birth is a safe option that results in very positive birth experience among mothers. Therefore, it should be offered as an option to pregnant women within the public health system.

In this context, it is of vital importance to study the birth and birth experience, along with the factors that contribute to a positive experience. These findings can help the development and implementation of health policies that respect the women's and babies' needs before, during and after childbirth.

Introducing the systematic evaluation of the birth experience as a perinatal health indicator is one of the Department of Health of the Catalonia's Government priorities for 2023.

7 | CONCLUSION

Most of the women in our sample who chose to give birth at home reported a positive birth experience, which they mainly attributed to their active participation in the process and the support provided by their midwives. Interestingly, multiparous women tended to have a higher perception of safety.

However, it is worth noting that women who underwent interventions resulting in the medicalization of the birth reported less satisfaction, especially when they were transferred to hospital from home. This highlights the importance of providing appropriate care and support to women during home births to minimize the need for medical interventions and enhance the overall experience.

THERE IS A STATISTICIAN ON THE AUTHOR TEAM

None.

AUTHOR CONTRIBUTIONS

All authors have agreed on the final version and meet at least one of the following criteria recommended by the ICMJE: (a) substantial contributions to conception and design, acquisition of data or analysis and interpretation of data. (b) drafting the article or revising it critically for important intellectual content. Made substantial contributions to conception and design, or acquisition of data or analysis and interpretation of data; Lucia Alcaraz-Vidal, Rafael Vila- Candel, Gemma Robleda. Involved in drafting the manuscript or revising it critically for important intellectual content; Lucia Alcaraz-Vidal, Rafael Vila- Candel, Fatima Leon-Larios. Given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content; Lucia Alcaraz-Vidal, Rafael Vila- Candel,

Fatima Leon-Larios, Gemma Robleda. Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved; Lucia Alcaraz-Vidal, Rafael Vila- Candel, Fatima Leon-Larios.

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CONFLICT OF INTEREST STATEMENT

The authors have declared that they have no conflict of interest.

PEER REVIEW

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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