

Population-Based Survey Showing That Breastfed Babies Have a Lower Frequency of Risk Factors for Sudden Infant Death Syndrome Than Nonbreastfed Babies

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Abstract

Justification: Breastfeeding provides the best infant food, and closeness to the mother is crucial for successful breastfeeding. However, sharing parents' beds and sleeping on the stomach poses a high risk for sudden infant death syndrome (SIDS). There is little information on these practices regarding the Spanish population.

Objective: To explore breastfeeding and bed-sharing practices in the study population

Materials and Methods: A cross sectional observational study was conducted through an anonymous telephone survey with a representative random sample of babies born in the Health Area of La Marina Baixa, Alicante, between 2018 and 2019. A previous-day strategy was implemented to determine the feeding and bed-sharing variables.

Results: The total breastfeeding and formula-feeding rates were 47.0% and 52.9%, respectively. The overall bed-sharing rate was 66.5%. The breastfeeding rate was 86.4% with bed-sharing and 13.6% without bed-sharing. The rate of prone sleeping position in children younger than 6 months of age was 9.3–3.5% with breastfeeding and 5.8% with formula feeding. Lower frequencies of tobacco, alcohol, and nonsupine sleeping positions were observed among mothers who practiced breastfeeding and bed-sharing.

Conclusions: We found a close relationship between breastfeeding and bed-sharing and a lower frequency of SIDS risk factors associated with both practices. Families should be informed about the risk factors associated with SIDS to encourage safe bed-sharing while avoiding recommendations that discourage breastfeeding.

Keywords: breastfeeding, bed-sharing, risk factors, sudden infant death syndrome

Introduction

EXCLUSIVE BREASTFEEDING FOR the first 6 months of life is the best feeding regimen for babies.^{1,2} There is strong debate in scientific forums about the possible relationship between bed-sharing, understood as sharing the bed during nighttime sleep with babies aged younger than 6 months, and sudden infant death syndrome (SIDS). Some authors claim to have demonstrated that bed-sharing increases the risk of SIDS in babies aged younger than 3 months,³ despite concurrent protective factors associated with bed-sharing, such as breastfeeding, while others claim the opposite.⁴ It must be highlighted that all the data on which current recommenda-

tions are based come from countries with cultures and habits somewhat different from those of the European Mediterranean population.

The little data published about the Spanish population are incomplete and outdated, making it difficult to compare with prevalence rates in other countries with similar socioeconomic status. The Spanish Association of Pediatrics (*Asociación Española de Pediatría*; AEPED), following the position of the American Association of Pediatrics (AAP),⁵ recommends avoiding bed-sharing and laying babies on their backs to prevent sudden infant death. It also recognizes a greater risk of SIDS before the age of 4 months without distinction by types of feeding. The AAP accepts

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breastfeeding, with a level of evidence A, as a preventive factor for SIDS but advises against sharing the bed, stating instead that the baby should sleep in a crib next to the parents, avoiding sofas and armchairs during the first year of life.

It also states that “infants who are brought into the bed for feeding or comforting should be returned to their own crib or bassinet when the parent is ready to go back to sleep.”⁵ Other risk factors include the use of soft surfaces, pillows, sofas, couches, prone and sideways sleeping positions, smoking, and the consumption of alcohol and other addictive substances. The Academy of Breastfeeding Medicine (ABM) warns about risk factors that should be avoided during bed-sharing,⁶ while the National Institute for Health and Care Excellence of the United Kingdom,⁷ the Swiss Society of Pediatrics, and the Argentine Society of Pediatrics have chosen not to unilaterally advise against bed-sharing, but inform parents of the risks associated with it as well as the conditions necessary for safe bed-sharing.

The SIDS rate varies across nations. In the United Kingdom in 2014, the rate was 0.3/1,000 live births.⁸ The limited data published for some regions of Spain indicate a relatively low rate of 0.23/1,000 live births in 1989. Still, the tragedy of the death of a baby has a great impact on the family and society.

There is scientific evidence for the interrelation between breastfeeding and bed-sharing, or the proximity between the mother and her child during sleep,^{8–13} and the bidirectional relationship between infant sleep and biosocial environment factors.^{11,14,15} Similarly, there is also evidence regarding the correlation between the protective effect of breastfeeding against SIDS^{15–17} and the baby’s supine sleeping position.¹⁸ In a case-control study in southern England, Fleming and Blair¹⁹ found that bed-sharing does not increase the number of cases of SIDS without the coexistence of other factors, such as consumption of tobacco, alcohol, and addictive substances by the mother and father or the use of unsuitable surfaces, such as sofas, or armchairs.

Since 2015, midwives in the Health Area of La Marina Baixa, Alicante, Spain, have promoted breastfeeding and informed mothers about the practice of safe bed-sharing, following the guidelines of the Ministry of Health, Consumer Affairs, and Social Welfare of Spain and UNICEF.²⁰

The present study sought to determine the rates of breastfeeding and its relationship with the practice of bed-sharing as well as the known risk factors for SIDS in La Marina Baixa.

The objectives of this study were twofold: first, to determine the rates of breastfeeding during the first 2 years of life and of the introduction of complementary foods before 6 months of age and, second, to understand the practices related to nighttime sleep of parents and children up to 24 months of age. Our hypotheses were as follows: (1) breastfeeding and bed-sharing are related practices, and (2) there is a lower frequency of risk factors for SIDS among breastfed children in the study population. Regarding variable analysis, we assumed that bed-sharing is not among the other explored risk factors for SIDS.

Materials and Methods

Design

This was a cross sectional observational study in the form of an anonymous telephone survey with prior verbal informed consent. We used a validated questionnaire with di-

chotomous questions except for those of a continuous type that referred to age and weight. The questionnaire consisted of two parts: (1) demographic data of the parents and the last child younger than 2 years of age and (2) data on eating practices and habits during nighttime sleep in relationship to bed-sharing. To inquire about these, we used the previous-day strategy: “Did the baby breastfeed yesterday?” “Did you bed-share with your baby yesterday?” “In what position did your child sleep last night?”

Variables

The variables were (1) breastfeeding not supplemented with formula feeding; (2) breastfeeding supplemented with formula feeding; (3) formula feeding without the use of other types of milk (the term “exclusive” was avoided due to its restrictive nature and difficulty in compliance); (4) supine position, which implied that the infants slept on their backs; (5) prone position, which implied that the infants slept on their stomachs; and (6) type of surface used for baby sleep the previous night.

Five additional variables were created: (1) overall bed-sharing—that is, sharing a surface in any way during nighttime sleep; (2) “usual”—that is, if bed-sharing occurred five or more nights per week; (3) “occasional”—that is, if bed-sharing occurred four or fewer nights per week; (4) “non-supine,” which encompasses the prone and side sleeping positions considered a risk for SIDS; and (5) who slept with the baby when bed-sharing. The latter two variables were used only for analyzing children younger than 6 months of age. We used demographic data related to the toxic habits of parents on the variable analysis. The Research Ethics Committee of Sant Joan d’Alacant Hospital approved this study protocol.

Sample size and origin

To calculate the sample size, we used StatCalc—Sample Size and Power of Epi Info version 7.2.2.6. For a target population of 1,150 registered births in the Marina Baixa Health Area during 2 consecutive semesters of 2018 and 2019*, an expected frequency for any type of breastfeeding of 40%, and a margin error of 5%, 272 participants were found. Due to the universal type of health care, most population sectors were represented in the sample. More than 70% of babies are delivered in the public hospital in the study area. In addition, those born in private centers are registered in the Population Information System. Parents registered in the area usually take their children to public primary care centers for health check-ups.

***Correction added** on February 8, 2022 after first online publication of December 16, 2021: The years in the second line of the paragraph have been updated to 2018 and 2019 respectively.

Inclusion criteria and selection of participants

The inclusion criteria were as follows: (1) healthy mother-child dyad, (2) single delivery, (3) children without conditions that make breastfeeding impracticable, (4) birth registrations in the study area during the established period,

and (5) attending health controls in the primary care center of the health area. Participants who did not meet these criteria were excluded from the study.

Participants were selected using a systematic random sampling method, and the final sample consisted of 285 participants.

Data collection

Three midwives from the Marina Baixa Health Area were in charge of collecting data by telephone from the selected sample of newborns registered in the census of the aforementioned period.

Data analysis and management

To analyze the results, we used a chi-square test (χ^2), two-tailed Fisher’s exact test, and Kruskal–Wallis test to examine the difference in means between two groups within homogeneous variances. The dichotomous variables were coded with a value of 1 when the answer was “YES” and 2 when the answer was “NO.” Accordingly, in the 2×2 table, the value 1 is placed in box “a” (true positive). For the bivariable analysis, we used the following outcome variables: (1) breastfeeding and (2) overall bed-sharing. In the multivariable logistic regression analysis, dummy variables were used only for breastfeeding and bed-sharing. Variables with statistical differences in the bivariable analysis were introduced into the model. Overall, variables with more than 1.4% of missing data were not included in the statistical analysis.

The person who entered the information in the database (Microsoft Excel[®]) did not participate in the survey. Data analysis was performed using the statistical package Epi Info version 7.2.2.6, provided by the CDC of Atlanta, Georgia.

Results

The initial selection consisted of 317 candidates; 13 were not contacted, 16 refused to participate, and 3 were eliminated (twins). The sample comprised 285 participants. No responses were obtained for 4.4% of the questions. A total of 73.5% of the participants answered the question “Who slept with the baby?” In relationship to babies aged 6 months or younger, 74.4% of the participants responded. A total of 66% responded to the question “Where did your infant sleep last night?”

Table 1 shows the sociodemographic data of parents and infants. The frequency of previous-day breastfeeding was 134 (47.0%); without supplements, 101 (35.4%); with formula feeding, 151 (52.9%); and with formula feeding only, 118 (41.4%). Among those younger than 6 months, 43.7% had breastfed without formula feeding supplements, 26% took only formula feeding, and 30.3% fed both types of milk.

During nighttime sleep, 66.0% used the crib, and 11.0% slept in a separate room; none of the infants in the latter case were younger than 6 months. The overall bed-sharing rates were 66.3%, and the usual and occasional rates were 58.7% and 41.3%, respectively ($p < 0.001$). A total of 33.5% of the participants had never practiced bed-sharing. Of those who had bed-shared, 60.3% were breastfeeding and 39.7% were not ($p < 0.0001$). A total of 75.7% had practiced bed-sharing all through the night ($p < 0.001$).

Among children younger than 6 months, 73.9% were breastfeeding (Table 2). Of those who practiced bed-sharing,

TABLE 1. SOCIODEMOGRAPHIC DATA OF PARENTS AND INFANTS

Parents			P
Age, years	Mothers (n=285)	Fathers (n=280)	—
Mean (SD)	32.8 (5.5)	36.4 (6.5)	—
Range	17–49	19–57	—
Origin	n=285 (%)	n=278 (%)	—
Spain	182 (63.9)	188 (67.6)	—
EU	18 (6.3)	16 (5.8)	—
Outside EU	85 (29.8)	74 (26.6)	—
Education level	n=284 (%)	n=280 (%)	
None	17 (6.0)	21 (7.5)	<0.04
Low	73 (25.7)	109 (38.9)	<0.001
Medium	108 (38.0)	101 (36.1)	<0.03
High	86 (30.3)	49 (17.5)	<0.04
Use of additive substances	n=283 (%)	n=270 (%)	
Tobacco	53 (18.7)	109 (40.4)	<0.0001
Daily consumption	37 (13.1)	95 (35.2)	<0.001
Pregnancy	36 (12.7)	—	—
Alcohol	46 (16.3)	95 (35.2)	<0.001
Daily consumption	14 (4.9)	35 (13.0)	<0.001
Other additive substances	1	1	—
Infants			P
Gender	Female	Male	
Age, months, mean (SD)	128	156	0.07
Range	2–22	2–22	—
Birth weight, g	n=282	n=282	
Mean (SD)	3198.1 (466.7)	3388.8 (514.3)	<0.01
Range	1,640–4,500	1,800–5,000	—
Gestational age			
Weeks	39.2	39.3	—
Range	34–42	34–42	—
Less than 37 weeks, %	18 (52.9)	16 (47.1)	—
	BF (%)	FF (%)	
Nighttime pacifier use			
Overall = 157	45 (28.6)	112 (71.3)	<0.0001
Age ≤6 months	33 (47.1)	42 (82.3)	<0.001

BF, breastfeeding; EU, European Union; FF, formula feeding; SD, standard deviation.

67.4% had breastfed. Without bed-sharing, the breastfeeding rate was 33.3% ($p < 0.001$). In this age group, bed-sharing was practiced in 70.5% of cases—usually in 59.3% and occasionally in 40.7% ($p < 0.001$). Among bed-sharing participants, 72.9% did it all through the night, and 27.1% bed-shared only for a part of the night ($p < 0.003$).

Of those responding bed-sharers with infants younger than 6 months (69%), 96.6% had the infants sleeping in their parents’ beds. The prone sleeping position was

TABLE 2. DATA ON INFANT FEEDING PATTERN

Type of feeding	N=285	BF (%)	FF (%)	BF+FF (%)
Overall		134 (47.0)	151 (52.9)	—
Not supplemented		101 (35.4)	118 (41.4)	—
Supplemented				66 (23.2)
Age, months	<i>n</i>	Not supplemented	Not supplemented	Supplemented
2–3	34	11 (32.3)	5 (14.7)	18 (52.9)
4–5	85	41 (48.2)	26 (30.6)	18 (21.2)
6–12	71	9 (12.7)	44 (62.0)	18 (25.3)
13–24	95	23 (24.2)	60 (63.2) ^a	12 (12.6)
Initiation of complementary feeding: Age 3–5 months		11 (15.7)	18 (34.6)	<i>p</i> < 0.03

^aGrowing up milk or whole cow's milk.
BF, breastfeeding; FF, formula feeding.

reported by 9.3% of respondents. A total of 3.5% slept face down when they were breastfeeding and 5.8% when they were formula-fed (Table 3).

The bivariable analysis found that Spanish mothers were less likely to breastfeed than non-European mothers (odds ratio [OR]=0.51, 95% confidence interval [CI]: 0.31–0.87), while smoking mothers were less likely to breastfeed than nonsmokers (OR=0.24, 95% CI: 0.12–0.49). Similarly, there was a lower probability of breastfeeding with alcohol consumption (OR=0.30, 95% CI: 0.15–0.63). The probability of breastfeeding was higher with overall bed-sharing (OR=6.50, 95% CI: 3.60–11.73); likewise, the probability of breastfeeding was higher when bed-sharing was usual (OR=3.03, 95% CI: 1.65–5.56). Furthermore, the probability of breastfeeding increased when it was adjusted for duration of bed-sharing (OR=7.3, 95% CI: 4.07–13.2).

Mothers with higher education were more likely to breastfeed (OR=1.98, 95% CI: 1.08–3.62). Babies who slept on their backs were 4.4 times more likely to be breastfed (95% CI: 1.41–13.7). Regardless of bed-sharing, children younger than 6 months of age, who were not laying on their backs, were less likely to be breastfed (OR=0.42, 95% CI: 0.19–0.91). Similarly, there was a lower probability of breastfeeding with the use of a pacifier (OR=0.18, 95% CI: 0.11–0.31).

Bed-sharing was less likely among formula-fed babies (OR=0.16, 95% CI: 0.08–0.32). Smoking mothers were less likely to practice bed-sharing (OR=0.47, 95% CI: 0.26–0.88). Children who did not sleep in a supine position were less likely to bed-share than those who slept on their backs when adjusting for breastfeeding (OR=0.20, 95% CI: 0.10–0.39). Among those younger than 6 months, the probability of bed-sharing was higher after adjusting for breastfeeding (OR=1.52, 95% CI: 1.02–2.28). The probability of bed-sharing was lower with the use of a pacifier (OR=0.46, 95% CI: 0.28–0.78; Table 4).

In the multivariable analysis, no association with overall bed-sharing was observed when the outcome variable was breastfeeding. There was a positive association with the usual practice of bed-sharing (OR=3.08, 95% CI: 1.20–7.91), while the association was negative with the use of a nighttime pacifier (OR=0.19, 95% CI: 0.10–0.36) and prone sleeping position (OR=0.17, 95% CI: 0.04–0.69). When the outcome variable was bed-sharing, a negative association with maternal smoking was found (OR=0.19, 95% CI: 0.04–0.92). There was a positive association between bed-sharing and breastfeeding (OR=7.72, 95% CI: 3.75–15.9; Table 5).

TABLE 3. DATA ON SLEEPING PATTERN

Sleeping and bed-sharing features	n	%	P
Overall crib use (<i>n</i> = 188)			
Slept in parent's room	157	66.0	—
Slept in separated room ^a	31	11.0	—
Overall bed-sharing			
Total	189	66.3	
With BF	114	60.3	<0.0001
Without BF	75	39.7	
Frequency: Usual	111	58.7	<0.001
Occasional	78	41.3	
Duration: All through the night	143	75.7	<0.001
Part of the night	45	23.8	
Type of surface ^b			
Parent's bed	130	68.8	
Infants aged ≤6 months (<i>N</i> = 122)			
Overall bed-sharing	86	70.5	
BF with OBS ^c	58	67.4	<0.001
BF without OBS	12	33.3	
Frequency: Usual	51	59.3	<0.01
Occasional	35	40.7	
Duration: All through the night	62	72.9	<0.003
Part of the night	23	27.1	
Type of surface (<i>n</i> = 59)			
Parent's bed	57	96.6	—
Armchair	1	1.7	
Sidecar crib	1	1.7	
Sofa	0	—	
Infant sleeping position with OBS (<i>n</i> = 85)			
Supine	58	67.4	—
On a side	19	22.1	
Prone	8	9.4	
Prone with BF	3	3.5	—
Prone without BF	5	5.8	
Who slept with the baby? ^d			
Mother	18	28.1	—
Father	2	3.1	
Both parents	44	68.8	
Other	0	—	

^aNo infant ≤6 months slept in separated room.

^bA total of 73.5% answered among OBS babies, and 74.4% among babies aged ≤6 months.

^cOverall bed-sharing=usual and occasional.

^dA total of 64 (74.4%) of cases responded.

BF, breastfeeding; OBS, overall bed-sharing.

TABLE 4. BIVARIABLE ANALYSIS

<i>Exposure variables</i>	%	OR	95% CI	p
Outcome: Breastfeeding				
Spanish mother versus outside EU ^a	41.2 versus 57.6	0.51	0.31–0.87	<0.02
Maternal tobacco use versus nonuse	20.7 versus 52.2	0.24	0.12–0.49	<0.0001
Maternal alcohol use versus nonuse	23.9 versus 50.6	0.30	0.15–0.63	<0.002
Mother's education: high versus low	54.6 versus 37.8	1.98	1.08–3.62	<0.04
OBS versus no OBS ^b	60.3 versus 39.7	6.50	3.60–11.73	<0.0001
Usual bed-sharing versus occasional bed-sharing	71.2 versus 44.9	3.03	1.65–5.56	<0.001
Occasional bed-sharing versus never bed-sharing	44.9 versus 18.9	3.50	1.76–6.87	<0.001
OBS versus no OBS				
Adjusted for bed-sharing duration ^c	61.8 versus 18.1	7.3	4.07–13.2	<0.0001
OBS versus no OBS among gestation. age $\leq 37^d$	92.3 versus 38.1	19.5	2.11–179.9	0.003
Supine position versus prone position	52.3 versus 20.0	4.4	1.41–13.7	0.008
Nonsupine pos. versus supine pos. <6 months ^e	43.6 versus 65.0	0.42	0.19–0.91	<0.05
Pacifier use versus no pacifier use	28.6 versus 68.5	0.18	0.11–0.31	<0.0001
Outcome: Overall bed-sharing				
Spanish mother versus outside EU	65.7 versus 70.6	0.79	0.45–1.40	0.43
Formula feeding	54.6 versus 88.1	0.16	0.08–0.32	<0.0001
Mother's education: high versus low	66.3 versus 63.3	1.14	0.61–2.11	0.68
Maternal tobacco use versus nonuse	51.9 versus 69.6	0.47	0.26–0.88	<0.03
Maternal alcohol use versus nonuse	58.7 versus 67.8	0.67	0.35–1.29	0.23
Nonsupine versus supine position	62.4 versus 69.6	0.72	0.44–1.20	0.21
Nonsupine versus supine position	—	—	—	—
Adjusted for breastfeeding	56.7 versus 86.7	0.20	0.10–0.39	<0.0001
Age <6 months versus age ≥ 6 months	70.5 versus 63.6	1.37	0.83–2.26	0.22
Adjusted for breastfeeding	66.7 versus 56.7	1.52	1.02–2.28	<0.05
Pacifier versus nonpacifier use	58.9 versus 75.6	0.46	0.28–0.78	<0.005

^aMothers from outside European Union.

^bOverall bed-sharing.

^cOverall bed-sharing adjusted for bed-sharing duration: all through the night versus part of the night.

^dLess than 37 weeks of gestational age ($n=34$) and overall bed-sharing.

^eInfant position during nighttime sleep.

CI, confidence interval; EU, European Union; OBS, overall bed-sharing; OR, odds ratio.

Discussion

Our results highlight the association between high bed-sharing rate and breastfeeding. This rate was higher for babies younger than 6 months of age. We found a lower frequency of risk factors for SIDS among breastfed children. However, the breastfeeding rates were below those recommended by international organizations.^{1,21} Only 43.7% of those younger than 6 months were breastfed the day before without formula feeding supplements. The high degree of willingness of mothers to participate in the survey should be noted, possibly resulting from the promotion and education about breastfeeding offered during pregnancy. However, when mothers were asked about who slept with the infant, they presumably perceived it as an invasion of privacy. This explains the low response rate for this question.

The term sudden unexpected infant death (SUID) is not included within the scope of the present study because it is an overarching term for all unexpected deaths, both those that remain unexplained and those in which a full causal explanation is eventually found.⁶ According to the AAP, “the distinction between SIDS and other SUIDs is challenging. Many of the modifiable and unmodifiable risk factors for SIDS and suffocation are strikingly similar.”⁵

A case-control study in a Spanish Health Center on bed-sharing practices found 49.5% of respondents to practice bed-sharing with a positive association with breastfeeding.

Another Spanish study based on a cohort of more than 1,900 participants found a bed-sharing rate of 34% for the first month of life with a subsequent decrease. These rates, which are lower than those found in our study, could be related to a reduced breastfeeding practice or the type of face-to-face survey in health centers. Other studies have shown an interrelation between bed-sharing and breastfeeding.^{13,22,23} In our study, this association was positive when the weekly frequency of bed-sharing was analyzed. When analyzing the practice of bed-sharing and adjusting for its duration—that is, all through the night versus part of the night—the likelihood of breastfeeding almost doubled, suggesting a dose-dependent relationship.

The association between breastfeeding and bed-sharing was also positive among infants below 37 weeks, probably in connection with the practice of Kangaroo Mother Care during previous hospitalization. A German study found a lower risk of SIDS among children breastfed in the first month of life.¹⁷ The multivariable analysis for breastfeeding showed a positive association with a higher frequency of weekly bed-sharing and a negative association with the use of nighttime pacifier and the prone position.

Regarding the risk factors for SIDS²³ associated with bed-sharing, we observed less tobacco use among mothers who breastfed. The same results were observed among those who bed-shared after adjusting for breastfeeding. Alcohol consumption among our participants was lower (16.3%) than

TABLE 5. LOGISTIC REGRESSION
MULTIVARIABLE ANALYSIS

Exposure variables	OR	95% CI	p
Outcome: Breastfeeding			
Mother tobacco use	0.60	0.09–3.98	0.60
Mother alcohol use	0.52	0.15–1.84	0.31
Mother education level	1.34	0.94–1.91	0.10
Origin of the mother	1.23	0.86–1.76	0.26
Daily maternal tobacco and alcohol use ^a	1.61	0.48–5.40	0.44
Overall bed-sharing	1.09	0.26–4.58	0.90
Bed-sharing frequency ^b	3.08	1.20–7.91	<0.02
Overall bed-sharing duration ^c	2.10	0.83–5.27	0.11
Nighttime pacifier use	0.19	0.10–0.36	<0.0001
Prone position during nighttime sleep	0.17	0.04–0.69	<0.02
Outcome: Overall bed-sharing			
Mother tobacco use	0.19	0.04–0.92	<0.04
Mother alcohol use	0.69	0.26–1.82	0.47
Mother education level	0.87	0.63–1.22	0.44
Origin of the mother	0.85	0.61–1.20	0.35
Daily maternal tobacco and alcohol use	0.47	0.17–1.25	0.13
Breastfeeding	7.00	3.54–13.81	<0.0001
Gestational age	1.17	0.98–1.40	0.08
Nighttime pacifier use	0.80	0.43–1.49	0.49
Prone position at sleeping	2.32	0.75–7.24	0.15

^aMaternal daily consumption of tobacco and alcohol.

^bUsual versus occasional.

^cAll through the night versus part of the night.

CI, confidence interval; OR, odds ratio.

other published figures.²⁴ Although alcohol consumption was negatively associated with breastfeeding, the same trend was not observed when we analyzed bed-sharing. It is worth highlighting the positive association of the supine position during nighttime sleep with breastfeeding. After adjusted for breastfeeding, when the outcome variable was overall bed-sharing, a negative association with infant nonsupine position was seen. Multivariable analysis for bed-sharing showed a positive association with breastfeeding and a negative association with maternal smoking.

The AEPED recommends laying the baby on its back. In our survey, the side position appeared in 22.3% of the cases and the prone position in 9.4% of babies younger than 6 months. We found a lower proportion in terms of sleeping face down with breastfeeding than with formula feeding in this group. With the use of formula feeding, the probability of practicing bed-sharing was six times lower. Empirical data suggested that mothers adopt certain routines as a strategy to mitigate exhaustion during nighttime sleep, the result of behaviors aimed at assessing risks and benefits, which would determine the decision to bed-share.²⁵

Conceptually, this would be important when making recommendations about breastfeeding and bed-sharing. Nighttime pacifier use has been described as protective against SIDS.²⁶ We found that those who were breastfeeding were less likely to use a pacifier, which was confirmed by the multivariable analysis.

Due to the study design, not knowing if breastfeeding led to bed-sharing or bed-sharing facilitated breastfeeding is a

limitation. As in any survey, the possible lack of veracity in the answers is a limitation, even more so in the case of a sensitive subject, such as bed-sharing. In our case, the anonymity and use of the telephone outside the health care environment partially alleviated this disadvantage. One strength of this study is that it is population-based, examining the practice of bed-sharing and associated risk factors among mother-child dyads that have not yet been explored in our country. To date, there has been no research in English on this topic involving the European Mediterranean population.

Our primary care midwives promote breastfeeding and provide prenatal education, which includes discussions about avoiding the use of pacifiers during the first 4 weeks postpartum. They inform against risky practices, such as smoking; consumption of alcohol and addictive substances; prone positions; and the use of soft surfaces, sofas, and padded mats, according to ABM recommendations.

Several authors have found a lower frequency of risk factors for SIDS among breastfeeding mothers and associated it with a possible evolutionary link to complex behaviors that prioritize the presence of the mother.^{8,9,11,13,27,28} This set of phenomena could explain the downward trend of SIDS from 0.14 to 0.09/1,000 live births from 2007 to 2015, respectively, observed in the Valencian community while an increase in the rates of breastfeeding and possibly in the concomitant practice of bed-sharing were attained.

Conclusions

The practice of breastfeeding without supplements in the study area remains below the rate recommended by international organizations. Mothers who breastfed practiced bed-sharing more frequently. Like findings of other studies, these practices were accompanied by a lower frequency of risk factors for SIDS. Low breastfeeding rates highlight the need to promote and support nursing mothers with favorable social policies. Due to the close relationship between breastfeeding and bed-sharing, nursing mothers and their families should be informed about how to bedshare safely, particularly with premature babies, avoiding recommendations that may hinder breastfeeding. Further studies that provide detailed information about risk practices in our population and updated data on SUID/SIDS are needed.

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