

# **Effect of Early Skin-to-Skin Mother–Infant Contact in the Maintenance of Exclusive Breastfeeding: Experience in a Health Department in Spain**

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## **Keywords**

breastfeeding, breastfeeding rates, early skin-to-skin contact, early weaning, risk factors

## **Abstract**

**Background:** Breastfeeding has been shown to result in extensive physical and psychological benefits for both the mother and the newborn. However, the rate and duration of exclusive breastfeeding (EBF) remains low worldwide. Mother–infant skin-to- skin contact (SSC) immediately after birth has demonstrated results that support the argument for breastfeeding continuation. Research aim: This study aimed to investigate the prevalence of EBF 3 months postpartum and the effect of early SSC in maintaining optimal EBF practices for mothers and their healthy newborns.

**Methods:** We conducted an observational, retrospective study in Spain from 2013 to 2015. Pregnant women were interviewed immediately postpartum and again at 3 months postpartum regarding variables associated with breastfeeding initiation and continuation.

**Results:** There were 1,071 women recruited. Early SSC was performed in 92% of vaginal births but only 57% of urgent caesarean births. Of women breastfeeding at discharge, 69.5% performed SSC with their newborn. We found that 68.6% of women were exclusively breastfeeding by discharge and 46.7% by 3 months postpartum. Type of feeding at discharge, country of origin, and parity were found to be associated with each other ( $p = .003$ ,  $p = .001$ , respectively). Early SSC was also significantly associated with type of feeding at discharge, 1 month, 2 months, and 3 months postpartum ( $p < .001$ ). Hypogalactia (19.8%) was the most frequently reported factor for breastfeeding discontinuation.

**Conclusion:** Breastfeeding promotion interventions are likely to improve breastfeeding rates at 3 months postpartum. Social and economic factors should be taken into account when such programs are planned to be implemented.

## Background

Breastfeeding has extensive physical and psychological benefits for the mother and the newborn. For the infant, breastfeeding offers passive immunization against infectious diseases, translating to a reduction of diarrheal episodes, bacteraemia, pneumonia, and meningitis during the first year of life. Breastfeeding has also been linked to a reduced risk of sudden infant death syndrome, allergies, asthma, and childhood leukaemia and to a further effect on the incidence of adult obesity and diabetes (Britton, McCormick, Renfrew, Wade, & King, 2009). Similarly, maternal benefits include an improved bond with the newborn, weight stabilization, and reduced risk of depression during the postpartum period, as well as a lower lifetime incidence of breast or ovarian cancer (Committee on Healthcare for Underserved Women, 2013; Rollins et al., 2016). Breastfeeding provides short- and long-term health, economic, and environmental advantages to children, women, and society (Rollins et al., 2016).

Different studies have shown positive, statistically significant effects of both rooming-in and early mother–infant skin- to-skin contact immediately after birth on increasing exclusive breastfeeding (EBF) during the hospital stay (Bramson et al., 2010) and continuation of breastfeeding from 1 to 4 months after birth (Aghdas, Talat, & Sepideh, 2014; Moore, Anderson, Bergman, & Dowswell, 2012; Righard & Alade, 1990).

Several studies highlight how rates and duration of EBF in high-income countries remain low and present a wide inter- country variability (Victora et al., 2016), despite international recommendations promoting EBF. The highest prevalence rates at 3 months postpartum were observed in Scandinavian countries, Japan, and New Zealand (ranging from 71% to 81%). In contrast, the prevalence rates reported in countries such as the United Kingdom, the United States, Ireland, France, Spain, and Canada were lower and varied from 15% to 51% (Haiek, Gauthier, Brosseau, & Rocheleau, 2007; Kramer & Kakuma, 2012; Oribe et al., 2015; Rius et al., 2014). In the Valencia region (Spain), compliance with these recommendations at 3 and 6 months in 2012 was limited (45.8% and 27.9% respectively), according to the latest data provided by the Observatory for Children’s and Perinatal Health (Generalitat Valenciana & Observatorio de Salud Infantil y Perinatal, 2012). A recent study (Rius et al., 2014) in our region reported a 39% EBF prevalence rate at 3 months.

Our study aimed to determine the prevalence of EBF at 3 months postpartum and the effect of early SSC on the ability of mothers and their healthy newborn infants to maintain optimal EBF practices.

## **Methods**

### *Study Design*

We conducted an observational, retrospective study of the population seen at the La Ribera Health Department (Valencia, Spain) following implementation of a SSC strategy. The catchment area of the department includes 249,000 inhabitants, with approximately 2,000 births per year. The data were collected from January 2013 to December 2015.

### *Sample Size*

Before obtaining the final sample, we selected women to be interviewed through simple randomized sampling. The selected mothers all resided within the catchment area of the Health Department. Mothers were asked about reasons for EBF cessation and duration at different times (at discharge and 1, 2, and 3 months). The interviews were conducted by the midwife of each participating health centre in the postpartum period (between 4 and 10 days) at health centre clinics and over the telephone at 3 months after birth.

The information about the type of feeding at 1 and 2 months after labour was obtained from the electronic medical records at the health centres.

We estimated the prevalence of mothers discontinuing EBF before 3 months to be 50%, in accordance with previous studies in our context (Rius et al., 2014). We assumed a population of 6,000 women (2,000 per year), with a Type I error (alpha risk) of 0.05, an accuracy of 5%, and a dropout rate of 30%. We therefore calculated a sample size of 516 women for our study.

Women who declined to participate in the telephone interview or were untraceable after three attempts to contact by telephone were excluded from the study. We also excluded twin, multiple, and premature births to facilitate the comparison with previously published studies (Rius et al., 2014).

### *Measures and Data Collection*

Variables identified in the literature as associated with breastfeeding initiation were also evaluated for their potential confounding effects. Retrospective data collection was carried out from February to April 2016. Information at birth was retrieved from electronic health records, whereas data at 3 months postpartum and consent to participate were obtained through phone interviews. The variables collected comprised the following:

Sociodemographic characteristics. Sociodemographic characteristics included were maternal age (in completed years until the due date) and country of origin.

Obstetric-neonatal characteristics. Obstetric-neonatal characteristics included were parity, gestational age at delivery, beginning of delivery, type of analgesia, type of delivery, gender of the newborn, birth weight, Apgar score at both 1 and 5 minutes, umbilical artery pH, early SSC, type of feeding (at discharge, 1 month, 2 months, and 3 months postpartum), reasons for breastfeeding cessation, and EBF duration in days.

Early SSC was defined as the prone placing of the naked infant on the mother's bare chest at birth, in the first minute after birth, or very soon afterward. The infant is suctioned while resting on the mother's abdomen or chest, if medically indicated; thoroughly dried, and covered with a prewarmed blanket. To prevent heat loss, the infant's head may be covered with a dry cap, which is replaced if it becomes damp. As part of routine practice, all other interventions are delayed until at least the end of the first 2 hours of life in the delivery room.

The SSC process in mothers who deliver by caesarean birth follows this protocol: after the umbilical cord is clamped and cut a general assessment of the newborn, in combination with the Apgar test, is completed. Then, as per local protocol, the infant is dried, covered in a towel, and handed to the mother for a brief contact while surgery is completed. Next, the infant is returned to the labour room and placed on the birth partner's bare chest. After surgery, the mother is transferred to the labour room for recovery and the newborn placed on the mother's bare chest for at least 2 uninterrupted hours. Although the recording of early SSC did not include the exact time from birth to technique implementation or the exact duration, the local protocol described above was precisely followed. In our study, when fully informed mothers decided not to proceed with SSC, or if mothers were advised for medical (i.e., maternal or neonatal complications) or organizational (i.e., pressure on side rooms) reasons to delay SSC, we considered the SSC process "not implemented."

Feeding type was classified as one of the following: exclusive breastfeeding, including expressed milk or milk from a donor, and allowing the infant to receive drops or syr- ups (vitamins, medicines, or minerals), as per World Health Organization definition (Marriott, White, Hadden, Davies, & Wallingford, 2012; Oribe et al., 2015; Winkvist et al., 2015); or formula feed only or mixed, if the feeding combined breastfeeding and feeding of formula.

Cause for discontinuation. If breastfeeding was discontinued, the reason for breastfeeding discontinuation was specified. Early discontinuation was classified as prior to 3 months postpartum (Rius et al., 2014); total duration was expressed in whole days. Exclusive breastfeeding days were calculated from the day of delivery.

### *Data Analysis*

Statistical analysis was undertaken using SPSS (version 22; SPSS, Inc., Chicago, Illinois, USA). Descriptive statistics data are presented as means and standard deviation for continuous variables (age, gestational age, birth weight, Apgar score, umbilical artery pH, and duration of breastfeeding), or median and interquartile range for non-normally distributed and categorical variables provided as range and percentage. A bivariate analysis was performed where the correlations between the dependent (type of feed at 3 months) and independent variables collected were studied using either the chi-square test ( $\chi^2$ ) between two categorical variables or one-way analysis of variance to determine the relationship between the type of feeding and the number of days spent feeding.

Bivariate analysis initially assessed confounding by adding each potential confounder variable to a model that included early (i.e., prior to 3 months postpartum) cessation of breastfeeding alone using odds ratio (OR). The multivariate model included interaction terms between early cessation of breastfeeding (cessation before 3 months) and other covariates studied. Confidence intervals (CIs) were calculated for a confidence level of 95%. A  $p < .05$  was considered statistically significant.

### *Ethical Considerations*

The study was conducted according to the principles included in the Helsinki Declaration. The study was approved by the Committee on Research–Ethics Committee of the Hospital Universitario de la Ribera in January 2016. All participants were provided full information to consider the nature of the study, voluntary participation, and confidentiality. The attending midwives recruited the women at the clinic and obtained their informed consent to participate in the study.

## **Results**

A total of 1,071 women gave birth between 2013 and 2015. Reasons for exclusion included preterm birth (32), twin or multiple births (14), refusal to participate (12), or not answering the telephone (34).

In terms of sociodemographic variables, the mean (SD) age was 31.1 (5.6) years. Table 1 details the distribution according to the type of feeding at discharge and sociodemographic and neonatal-obstetric characteristics observed in the population.

Regarding the obstetric variables, 638 (59.6%) women were primiparous. The mean (SD) gestational age at labour was 39.2 (1.4) weeks. We observed 31 (2.9%) newborns post term (> 42 weeks). Of the deliveries, 662 (58.1%) had a spontaneous onset and 234 (21.8%) were induced. The majority of births were completed vaginally, the rate of non- elective caesarean section was 12.8% (137/1,071), and 17.8% (191/1,071) of births were instrumented. Epidural analgesia was used in 760 (71%) of the cases studied.

Of vaginal births, 92% (650/705) included early SSC, whereas this rate was 86% (165/191) in instrumented deliveries, 81% (31/38) of elective caesarean section deliveries, and 57% (78/137) of urgent caesarean births. Of women who were breastfeeding at discharge, 69.5% (642/927) had SSC with their newborn.

The average (SD) birth weight was 3,289 (463) g, with 28 (2.8%) considered to be low weight for their gestational age (less than the 10th percentile), and 175 (17.4%) were greater than the 90th percentile. The mean (SD) Apgar score at 1 minute was 9.4 (0.8) and at 5 minutes was 9.8 (0.9). The average (SD) umbilical artery pH was 7.25 (0.1).

The results of the chi-square analyses demonstrated statistically significant differences in type of feeding at discharge related to the country of origin and parity variables ( $p = .003$  and  $p < .001$ , respectively). Achieving early SSC independently, and with the associated type of delivery, showed statistically significant differences in the type of feeding at discharge, 1 month, 2 months, and 3 months ( $p < .001$ , respectively).

The evolution of EBF during the follow-up period is presented in Figure 1. The prevalence of EBF at hospital discharge was 68.6%, 95% CI [66.9, 70.3]; before 30 days postpartum was 69.2%, 95% CI [65.5, 72.9]; at 1 month was 55.0%, 95% CI [52.9, 57.0]; at 2 months was 51.3%, 95% CI [48.9, 53.2]; and at 3 months was 46.7%, 95% CI [46.6, 50.9]. It is noteworthy that nearly a third (29.1%, 312) of puerperae intended to use formula feeding right after delivery and as the continued sole feeding method.

We noted significant differences in the type of feeding at 3 months as a result of the presence of an effective early SSC after birth ( $p < .001$ ), presented in Figure 2. Of those

women who did SSC, 490 (76%) were still breastfeeding at 3 months, 142 (22%) were using formula feeding, and 13 (2%) were using mixed feeding.

Total (*SD*) duration of EBF was 68.7 (32.7) days, 95% CI [66.3, 71.1], and the mean (*SD*) combined breastfeeding duration (i.e., including both EBF and mixed) was 39.3 (21.4) days, 95% CI [33.4, 45.3]. The average (*SD*) EBF duration in women who ceased to breastfeed during the first month was 12.2 (8.5) days, 95% CI [10.9, 13.6].

The mean (*SD*) duration of EBF after early SSC was 72.6 (31.9), 95% CI [70.2, 75.1], compared with 42.3 (25.5), 95% CI [37.1, 47.4], without SSC. Statistically significant differences on mean values were obtained ( $p < .001$ ).

The different causes of EBF discontinuation identified by mothers during the telephone survey and the average EBF days are presented in Table 2. The variables relative to their response and grade appear in order of increasing value. Data related to women who were exclusively breastfeeding at 3 months or those who decided to provide formula feeding before delivery are not shown.

The most frequently cited reason for EBF discontinuation was self-reported hypogalactia (19.8%), followed by lower- than-recommended increase in newborn weight gain (15.9%). Those factors related to the breast (inverted nipple, mastitis, and sore/cracked nipple) or the newborn (neonatal pathology, jaundice, hospital admission, or low weight) led to an EBF period of less than 30 days. On the other hand, the factors directly related to the mother (return to paid employment and reported tiredness) were more frequently cited within the first 2 months.

The multivariate model included interaction terms between early cessation of breastfeeding before 3 months and other covariates studied, all of which are presented in Table 3. Spanish mothers had twice the risk of discontinuing breastfeeding when compared with foreign-born mothers ( $OR = 2.5, p < .001$ ). On the other hand, factors associated with breastfeeding were being older than 32 years ( $OR = 0.7, p < .05$ ), being multiparous ( $OR = 0.6, p < .001$ ), giving birth after 39 weeks ( $OR = 0.7, p < .05$ ), and fulfilling early SSC after birth ( $OR = 0.1, p < .001$ ). There were no statistically significant differences for the remaining variables, which are presented in Table 3.

After controlling for other covariates included, the multivariate model showed Spanish origin ( $OR = 2.1, p < .001$ ) as an independent factor associated with early cessation of



breastfeeding, and inversely, being multiparous ( $OR = 0.6, p < .001$ ), having given birth after 39 weeks ( $OR = 0.6, p < .001$ ), and having performed early SSC after vaginal birth or caesarean birth ( $OR = 0.1, p < .001$ ) were facilitating factors, presented in Table 3 as adjusted OR. Interaction terms between early cessation of breastfeeding and other covariates were not significant in our multivariable analysis.

## Discussion

This was one of the most comprehensive randomized studies carried out in Spain. It had a large sample size and a data collection period of 3 consecutive years. It focused on the effect of early mother–infant SSC during the first 2 hours after delivery, one of the factors favouring the initiation of breastfeeding (Moore et al., 2012).

The prevalence of breastfeeding at hospital discharge (68.6%) in our study was lower than what had been obtained by other groups in Spain (Barriuso Lapresa, 2007; Gomis-Cebrián et al., 2009; Oliver-Roig et al., 2008; Oribe et al., 2015; Rivilla Marugán et al., 2003), ranging from 70% to 84%.

The rate of EBF at discharge in our Health Department (Generalitat Valenciana & Observatorio de Salud Infantil y Perinatal, 2012) increased by 8% from 2011 to 2015. Patient-centered policies at birth such as those described (Aghdas et al., 2014; Moore et al., 2012; Righard & Alade, 1990) could be responsible for the improvement seen in breastfeeding figures.

The prevalence of EBF at 3 months in our population (46.7%) was slightly higher than what other authors have recently described (Barriuso Lapresa, 2007; Ortega García et al., 2008; Rius et al., 2014), although it is lower than other cohorts in northern Spain (62.5%) (Oribe et al., 2015). As per other studies in Spain, a reduction in breastfeeding rates ranging from 22% to 42% after hospital discharge was observed. In our data, the discontinuation of breastfeeding was related to initial breastfeeding percentage. The pattern seems to repeat over 3 months, regardless of breastfeeding prevalence reached at discharge from hospital. Given that social and employment policies in Spain are homogeneous, we suggest that health care-level coordination and awareness of the mother about EBF may play a relevant role in these observed differences between different Spanish regions, although such analysis is outside the scope of our current research.

In our population, the combined duration of breastfeeding stood at 39 days, higher than observed in other studies in Spain (Oliver-Roig et al., 2008; Ortega García et al., 2008). Any

interventions aiming to improve this indicator would benefit from identifying the period during which most breastfeeding dropouts occur. In our population, the critical period stood at 12 days, in agreement with other authors (Oliver-Roig et al., 2008). Therefore, support for breastfeeding mothers and their environment during this transitional period would be crucial to ensure maintenance of EBF (Beake, Pellowe, Dykes, Schmied, & Bick, 2012).

We clearly identified two specific periods during which the greatest breastfeeding cessation occurred in our setting, as seen in Table 2. The first period is from hospital discharge to the first month of life of the newborn, during which problems related to the breast and the newborn appear. These problems in turn coincide with the loss of breastfeeding state welfare support and until both the mother and child are assessed in primary care. The second period is after 2 months of life and may be associated with factors related to the mother's interest or ability to continue breastfeeding in conjunction with a return to paid employment (Oribe et al., 2015; Rius et al., 2014). Providing peer support that includes one-on-one or group counselling has been shown to increase breastfeeding initiation and/or duration (Haroon, Das, Salam, Imdad, & Bhutta, 2013; Ingram, 2013). Services include breastfeeding education classes, prenatal classes, and clinical referrals. Populations that may benefit the most from peer counselling include disadvantaged and low-income women (Kervin, Kemp, & Pulver, 2010).

Several studies (Barriuso Lapresa, Sánchez-Valverde Visus, Romero Ibarra, & Vitoria Comerzana, 2000; Jovani Roda et al., 2002; Rivilla Marugán et al., 2003) point to hypogalactia as the main cause of EBF discontinuation, followed by infant failure to gain weight and/or infant weight loss. The latter was the reason most frequently cited by mothers for combining breastfeeding with formula feeding. Attending to these cases, we can see that they are interrelated and can conclude that perhaps acting on the hypogalactia would correct the lack of infant weight gain. At the same time, it is important to consider that most of the conditions referred to by mothers as hypogalactia are in fact subjective perceptions. In reality, only 5% of cases would match a clinical description (Oliver-Roig et al., 2008; Oribe et al., 2015). The subjective hypogalactia may be affected by a variety of external factors, including professional advice that may not relate to the mother's ability and desire to breastfeed (Oliver- Roig et al., 2008).

In our population, of all women formula feeding at 3 months (47%), 29% had already made up their minds to feed by formula on the delivery day. Therefore, we could infer that 18% had opted for formula feeding as a consequence of EBF failure. Whereas most mothers (71%) do not initially reject breastfeeding and have a positive view of it, about half of women

at 3 months have not had their expectations met. Such unmet expectations were reflected in our study as the third cause of EBF discontinuation, which could be avoided by employing professional support and continuous monitoring (Oribe et al., 2015; Renfrew, McCormick, Wade, Quinn, & Dowswell, 2012).

As for the relationship between parity and duration of EBF at 3 months, we observed statistically significant results showing a greater tendency to sustain EBF in multiparous women, coinciding consistently with previous studies (Barriuso Lapresa et al., 2000; Oribe et al., 2015).

Although recent research (Pérez-Ríos, Ramos-Valencia, & Ortiz, 2008) concluded that labour by caesarean section negatively contributed to initiating and maintaining EBF, our findings did not support such a premise. We think that hospital protocols and routines that we have developed since 2012, such as SSC following delivery including caesarean section, have benefited our patients in this area, in agreement with other studies (Bramson et al., 2010; Stevens, Schmied, Burns, & Dahlen, 2014; Yuksel et al., 2015).

Therefore, we believe that coordination between primary and specialized care is essential to achieve EBF of better quality and duration. Health care providers must actively work to establish breastfeeding as the standard for infant feeding (Beake et al., 2012). Such a scenario can be encouraged by the implementation of measures supportive of EBF, such as the Baby-Friendly Hospital Initiative (Martens, 2012), and the relentless promotion of EBF in primary care (Cattaneo et al., 2010).

Our results on EBF, although far from excellent, do improve on what has been published in similar studies (Barriuso Lapresa, 2007; Gomis-Cebrián et al., 2009; Rius et al., 2014; Rivilla Marugán et al., 2003). However, our study has some limitations. First, the data collected in the telephone survey exploring the causes of discontinuation of breastfeeding may suffer from recall or social desirability biases, as well as being considered coercive. Second, the exact time of each of the SSC sessions was not controlled. As a general rule, women and newborns were able to spend 120 uninterrupted minutes together; however, service pressures sometimes forced us to clear the busy delivery room, therefore preventing us from guaranteeing that the bond had been made in full. In that case, SSC was recorded as “not performed.” In our study, although the exact elapsed time from birth until SSC was not recorded, our protocol established that it had to be performed within the first 30 minutes. In addition, even though we did not exactly record the total duration of time when the technique was performed, we used data from the current electronic health record platform,

which ensures that a minimum of 120 minutes is reached by the midwifery team in the delivery room. We were not able to randomize the performance of early SSC as it is a factor conducive to breastfeeding, and therefore, allocation to a “no early SSC” trial arm, withholding this practice, would have impinged on the best interests of both the mother and the neonate (Bramson et al., 2010; Moore et al., 2012).

## **Conclusion**

Breastfeeding promotion interventions are likely to improve breastfeeding rates, as suggested by our study. Further out-come evaluation of the measures implemented in our organization to improve breastfeeding rates is required. Breastfeeding promotion programs may benefit from addressing social and economic determinants affecting women who want to breastfeed.

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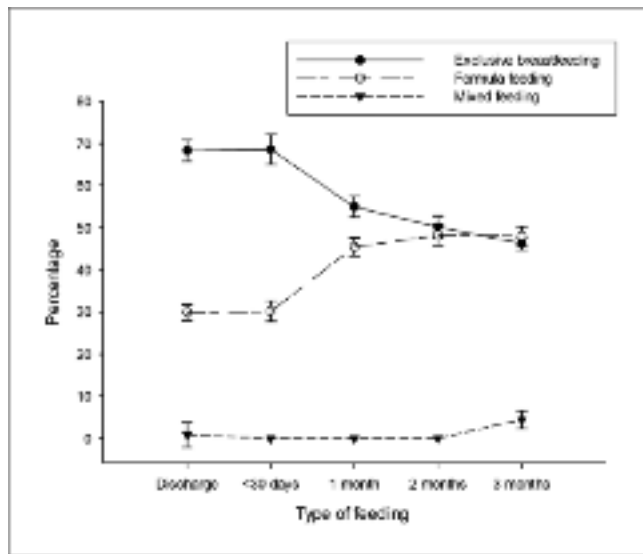
## **Declaration of Conflicting Interests**

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

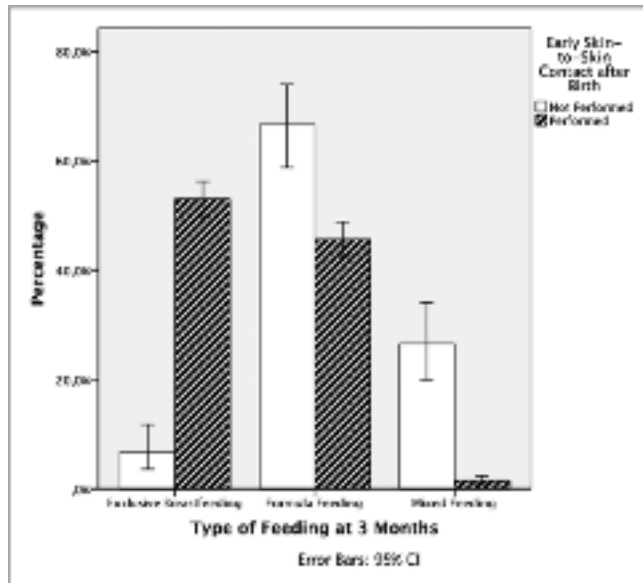
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**Figure 1.** Evolution of type of feeding from hospital discharge to 3 months postpartum ( $N = 1,071$ ).



**Figure 2.** Application of early skin-to-skin contact after birth and type of feeding at 3 months postpartum ( $N = 1,071$ ).



## References

- Aghdas, K., Talat, K., & Sepideh, B. (2014). Effect of immediate and continuous mother-infant skin-to-skin contact on breast-feeding self-efficacy of primiparous women: A randomised control trial. *Women and Birth*, 27(1), 37–40. doi:10.1016/j.wombi.2013.09.004
- Barriuso Lapresa, L. (2007). Estudio multivariante de la prevalencia de la lactancia materna en centro-norte de España [Multivariable study of breastfeeding prevalence in middle-north of Spain]. *Pediatría Atención Primaria*, 41(589), 589–612.
- Barriuso Lapresa, L., Sánchez-Valverde Visus, F., Romero Ibarra, C., & Vitoria Comerzana, J. C. (2000). Pautas hospitalarias respecto a la lactancia materna en el centro-norte de España [Maternity protocols about breastfeeding in the north-center of Spain]. *Anales de Pediatría*, 52(3), 225–231. doi:10.1016/S1695-4033(00)77327-9
- Beake, S., Pellowe, C., Dykes, F., Schmied, V., & Bick, D. (2012). A systematic review of structured compared with non-structured breastfeeding programmes to support the initiation and duration of exclusive and any breastfeeding in acute and primary health care settings. *Maternal and Child Nutrition*, 8(2), 141–161. doi:10.1111/j.1740-8709.2011.00381.x
- Bramson, L., Lee, J. W., Moore, E., Montgomery, S., Neish, C., Bahjri, K., & Melcher, C. L. (2010). Effect of early skin-to-skin mother–infant contact during the first 3 hours following birth on exclusive breastfeeding during the maternity hospital stay. *Journal of Human Lactation*, 26(2), 130–137. doi:10.1177/0890334409355779
- Britton, C., McCormick, F., Renfrew, M., Wade, A., & King, S. (2009). Support for breastfeeding mothers [Review]. *Library*, 1(4), 1–101. doi:10.1002/14651858.CD001141.pub3
- Cattaneo, A., Burmaz, T., Arendt, M., Nilsson, I., Mikiel-Kostyra, K., Kondrate, I., . . . Fallon, M. (2010). Protection, promotion and support of breast-feeding in Europe: Progress from 2002 to 2007. *Public Health Nutrition*, 13(6), 751–759. doi:10.1017/S1368980009991844
- Committee on Healthcare for Underserved Women. (2013). Breastfeeding in underserved women: Increasing initiation and continuation of breastfeeding. Committee Opinion No. 570. *Obstetrics & Gynecology*, 122(570), 423–428. doi:10.1097/01.AOG.0000433008.93971.6a
- Generalitat Valenciana & Observatorio de Salud Infantil y Perinatal. (2012). *Situación de la salud infantil y perinatal en la Comunitat Valenciana 2010* [Child and perinatal health situ-

ation in the Valencian Community 2010]. Retrieved from [http:// www.matronas-cv.org/rs/1257/d112d6ad-54ec-438b-9358- 4483f9e98868/540/fd/1/filename/bolet-n-osip-n-4-nov-2011.pdf](http://www.matronas-cv.org/rs/1257/d112d6ad-54ec-438b-9358-4483f9e98868/540/fd/1/filename/bolet-n-osip-n-4-nov-2011.pdf)

Gomis-Cebrián, R., Parra-Hidalgo, P., Calle-Urra, J., Oliver-Roig, A., García-de-León-González, R., Alcaraz-Quiñonero, A., & Arellano-Morata, C. (2009). Lactancia materna en la Region de Murcia: ¿Seguimos con el problema? [Maternal breastfeeding in the Region of Murcia: Does the problem persist?]. *Acta Pediátrica Española*, 67(6), 283–289.

Haiek, L. N., Gauthier, D. L., Brosseau, D., & Rocheleau, L. (2007). Understanding breastfeeding behavior: Rates and shifts in patterns in Quebec. *Journal of Human Lactation*, 23(1), 24–31. doi:10.1177/0890334406297278

Haroon, S., Das, J., Salam, R., Imdad, A., & Bhutta, Z. (2013). Breastfeeding promotion interventions and breastfeeding practices: A systematic review. *BMC Public Health*, 13(Suppl. 3), S20. doi:10.1186/1471-2458-13-S3-S20

Ingram, J. (2013). A mixed methods evaluation of peer support in Bristol, UK: Mothers', midwives' and peer supporters' views and the effects on breastfeeding. *BMC Pregnancy and Childbirth*, 13, 192. doi:10.1186/1471-2393-13-192

Jovani Roda, L., Gutiérrez Culsant, P., Aguilar Martín, C., Navarro Caballé, R., Mayor Pegueroles, I., & Jornet Torrent, Y. (2002). Influencia del personal sanitario de asistencia primaria en la prevalencia de la lactancia materna [Influence of primary care personnel on breastfeeding duration]. *Anales de Pediatría*, 57(6), 534–539. doi:10.1016/S1695-4033(02)78712-2

Kervin, B. E., Kemp, L., & Pulver, L. J. (2010). Types and timing of breastfeeding support and its impact on mothers' behaviours. *Journal of Paediatrics and Child Health*, 46(3), 85–91. doi:10.1111/j.1440-1754.2009.01643.x

Kramer, M. S., & Kakuma, R. (2012). Optimal duration of exclusive breastfeeding. *Cochrane Database of Systematic Reviews*, (8), CD003517. doi:10.1002/14651858.CD003517.pub2

Marriott, B. P., White, A., Hadden, L., Davies, J. C., & Wallingford, J. C. (2012). World Health Organization (WHO) infant and young child feeding indicators: Associations with



growth measures in 14 low-income countries. *Maternal and Child Nutrition*, 8(3), 354–370. doi:10.1111/j.1740-8709.2011.00380.x

Martens, P. J. (2012). What do Kramer's Baby-Friendly Hospital Initiative PROBIT studies tell us? A review of a decade of research. *Journal of Human Lactation*, 28, 335–342. doi:10.1177/0890334412438264

Moore, E. R., Anderson, G. C., Bergman, N., & Dowswell, T. (2012). Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database of Systematic Reviews*, (5), CD003519. doi:10.1002/14651858.CD003519. pub3

Oliver-Roig, A., Chulvi-Alabort, V., López-Valero, F., Salud Lozano-Dura, M., Seva-Soler, C., & Pérez-Hoyos, S. (2008). Momentos críticos de abandono de la lactancia materna en un seguimiento de 6 meses [Critical moments for weaning in a 6-month follow-up study]. *Enfermería Clínica*, 18(6), 317–320. doi:10.1016/S1130-8621(08)75854-6

Oribe, M., Lertxundi, A., Basterrechea, M., Begiristain, H., Santa Marina, L., Villar, M., . . . Ibarluzea, J. (2015). Prevalencia y factores asociados con la duración de la lactancia materna exclusiva durante los 6 primeros meses de la cohorte INMA de Guipúzcoa [Prevalence of factors associated with the duration of exclusive breastfeeding during the first 6 months of life in the INMA birth cohort in Gipuzkoa]. *Gaceta Sanitaria*, 29(1), 4–9. doi:10.1016/j.gaceta.2014.08.002

Ortega García, J. A., Pastor Torres, E., Martínez Lorente, I., Bosch Giménez, V., Quesada López, J. J., Hernández Ramón, F., . . . Sánchez Solís de Querol, M. (2008). Proyecto Malama en la región de Murcia (España): Medio ambiente y lactancia materna [Malama project in the region of Murcia (Spain): Environment and breastfeeding]. *Anales de Pediatría*, 68(5), 447–453. doi:10.1157/13120041

Pérez-Ríos, N., Ramos-Valencia, G., & Ortiz, A. P. (2008). Cesarean delivery as a barrier for breastfeeding initiation: The Puerto Rican experience. *Journal of Human Lactation*, 24(3), 293–302. doi:10.1177/0890334408316078

Renfrew, M. J., McCormick, F. M., Wade, A., Quinn, B., & Dowswell, T. (2012). Support for healthy breastfeeding mothers with healthy term babies. *Cochrane Database of Systematic Reviews*, (5), CD001141. doi:10.1002/14651858.CD001141.pub4

Righard, L., & Alade, M. O. (1990). Effect of delivery room routines on success of first breast-feed. *The Lancet*, 336(8723), 1105–1107. doi:10.1016/0140-6736(90)92579-7

Rius, J. M., Ortuño, J., Rivas, C., Maravall, M., Calzado, M., López, A., . . . Vento, M. (2014). Factores asociados al abandono precoz de la lactancia materna en una región del este de España [Factors associated with early weaning in a Spanish region]. *Anales de Pediatría*, 80(1), 6–15. doi:10.1016/j. anpedi.2013.05.011

Rivilla Marugán, L., Soto García, M., Pérez Villaverde, N., Marañón Henrich, N., Castillo Portales, S., & Estepa Jorge, S. (2003). Prevalencia y características de la lactancia materna en el área de salud de Toledo [Prevalence and characteristics of breastfeeding in Toledo's health area]. *Semergen*, 29(3), 121– 124. doi:10.1016/S1138-3593(03)74168-9

Rollins, N. C., Bhandari, N., Hajeebhoy, N., Horton, S., Lutter, C. K., Martines, J. C., . . . Victora, C. G. (2016). Why invest, and what it will take to improve breastfeeding practices? *The Lancet*, 387(10017), 491–504. doi:10.1016/S0140-6736(15)01044-2

Stevens, J., Schmied, V., Burns, E., & Dahlen, H. (2014). Immediate or early skin-to-skin contact after a caesarean section: A review of the literature. *Maternal and Child Nutrition*, 10(4), 456–473. doi:10.1111/mcn.12128

Victora, C. G., Bahl, R., Barros, A.J.D., Fran, G.V.A., Horton, S., Krasevec, J., . . . Rollins, N. C. (2016). Breastfeeding in the 21st century: Epidemiology, mechanisms, and lifelong effect. *The Lancet*, 387(10017), 475–490. doi:10.1016/S0140- 6736(15)01024-7

Winkvist, A., Brantsaeter, A. L., Brandhagen, M., Haugen, M., Meltzer, H. M., & Lissner, L. (2015). Maternal prepregnant body mass index and gestational weight gain are associated with initiation and duration of breastfeeding among Norwegian mothers. *The Journal of Nutrition*, 145(6), 1263–1270. doi:10.3945/jn.114.202507

Yuksel, B., Ital, I., Balaban, O., Kocak, E., Seven, A., Kucur, S. K., . . . Keskin, N. (2015). Immediate breastfeeding and skin-to-skin contact during cesarean section decreases maternal oxidative stress, a prospective randomized case-controlled study. *The Journal of Maternal-Fetal & Neonatal Medicine*, 7058(16), 1–22. doi:10.3109/14767058.2015.1101447