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## Original article

# Early initiation of breastfeeding is benefited by maternal education program<sup>☆</sup>

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### A B S T R A C T

**Objective:** To determine the influence of maternal education (ME) on early initiation of breastfeeding (BF) and its maintenance during the first two months of the infant's life, as well as to understand the influence of ME on the reasons for BF discontinuation.

**Methods:** This was a multicenter observational study carried out with primiparous women in four hospitals of Andalucía during 2011. Data was collected through interviews and from clinical charts. Raw and adjusted odds ratios were estimated during the analysis.

**Results:** Mothers who attended ME classes showed early initiation of BF (aOR = 1.78, 95% CI = 1.14-2.78) and maintenance of BF (aOR = 1.73, 95% CI = 1.15-2.61). There were no differences related to women's reasons to discontinue BF.

**Conclusions:** ME positively impacts the initiation and maintenance of BF.

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## El inicio precoz de la lactancia materna se ve favorecido por la realización de la educación maternal

### R E S U M E N

**Objetivo:** Determinar la influencia de la educación maternal (EM) sobre el inicio precoz de la lactancia materna (LM) y su mantenimiento hasta los dos meses de vida del recién nacido. Conocer la influencia de la EM sobre los motivos que argumenta la mujer para abandonar la LM.

**Métodos:** Estudio multicéntrico observacional llevado a cabo en cuatro hospitales de Andalucía en 2011 sobre mujeres primíparas. Los datos se recogieron a través de una entrevista y la historia clínica. En el análisis se estimaron odds ratios crudas y ajustadas.

**Resultados:** La realización de EM por parte de la madre se asoció con el inicio precoz de la LM (ORa = 1.78, IC 95% = 1.14-2.78) y el mantenimiento de esta (ORa = 1.73, IC 95% = 1.15-2.61). No hubo diferencias en los motivos que las mujeres argumentaron para abandonar la LM.

**Conclusiones:** La EM favorece el inicio y mantenimiento de la LM.

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#### Palabras clave:

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## Introduction

Breastfeeding (BF) is vital; the World Health Organization (WHO) recommends exclusive BF during at least the first six months of life.<sup>1</sup> This recommendation is based on scientific evidences.<sup>2</sup> There is considerable evidence of breastfeeding benefits in the short and long terms, not only for the newborn's health but also for the mother's.<sup>3</sup>

Only 35% of neonates around the world receive exclusive BF after the first three or four months of life,<sup>4</sup> and in Spain this percentage ranges from 20% to 30%.<sup>5,6</sup> According to a Cochrane review conducted in 2008, health education interventions, such as maternity education (ME), improve breastfeeding initiation rates among women.<sup>3</sup> In Andalucía, the ME program (a health education program for mothers during pregnancy, delivery, and birth) is performed in group sessions, during the third trimester of pregnancy, where, among other topics, BF is widely discussed: its importance, benefits, techniques, potential problems, among others;<sup>7</sup> this program is not exclusive to Spain, and is implemented in many countries.<sup>8</sup>

In Spain, the BF rate is far from the WHO recommendations.<sup>5,6</sup> BF during the first hour of life is a potential mechanism for health promotion and is an indicator of the importance of BF;<sup>9</sup> however, the rates of early initiation of BF, i.e., in the newborn's first hour of life, range from 17% in Eastern Europe to 50% in Latin American countries.<sup>10</sup> Given this scenario, the outdated few studies in existence, the recommendations of the last Cochrane review, and the recent changes in the context of perinatal care, it is relevant to determine the influence<sup>11</sup> of ME on the early initiation of BF and its maintenance during the first two months of the infants' life. This study also aimed to understand the influence of ME on the reasons for BF discontinuation.

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## Methods

This was a multicenter observational study conducted from January of 2011 to January of 2012 in the health care centers of the province of Jaén (Complejo Hospitalario Universitario de Jaén and Hospital San Juan de la Cruz de Úbeda), Hospital de Poniente en El Ejido (Almería), and at the Hospital Universitario Virgen de las Nieves de Granada, all located in Southern Spain. The reference population was composed of women who gave birth in any of these hospitals who met the following inclusion criteria: primiparous, single pregnancy, and over 18 years old. The study was approved by the ethics committees of these hospitals, and the mothers were requested to provide an informed consent. Language barrier was set as an exclusion criterion.

Socio-demographic data (age, gender, marital status, nationality, income, education level, work during pregnancy, job, sector of employment, and race) were collected in order to describe the presence of pathologies during pregnancy, planned pregnancy, early initiation of BF, maintenance of BF during the first two months of the infants life, and reasons for BF discontinuation according to mothers. Women were consecutively selected. Data was collected through an interview, and validated with medical records during post-

partum. Then, during the first two months of the infant's life, phone calls were made to mothers in order to determine how the child was being fed at that moment and, in case of BF discontinuation, to ascertain the reasons for it.

During data analysis, the odds ratio (OR) was estimated for dichotomous variables and its confidence interval (CI) at 95%. In a multivariable analysis, the logistic regression was applied, retaining as confounding factors the variables that had an impact on the main exposure coefficient of more than 10%. The socio-demographic characteristics and the presence of a pathology during pregnancy were initially considered as confounding factors, because women with higher socio-economic status attend ME classes more often and tend to BF less, while the presence of a pathology means a greater contact with the health care system and they are reminded of preventive measures.

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## Results

The study involved 520 women, of which 357 (68.65%) participated in the ME program. Most of these women were Spanish and were married (64.7%). Among them, 25.24% worked in public services and 31.73% had an undergraduate degree. Approximately 22.49% of these women declared monthly income below 1,000 Euros. Only 10% of pregnancies were unplanned.

Table 1 shows that 75.53% of mothers initiated BF early, within the newborn's first hour of life. In the group of mothers who attended ME, 70.66% initiated BF early, compared to 60.63% of women who did not (adjusted OR = 1.78, 95% CI = 1.14-2.78). Table 1 also presents the relation between ME attendance by mothers and BF maintenance after infants' two months of life (adjusted OR = 1.73, 95% CI = 1.15-2.61).

No significant association was identified between ME and the reason for BF discontinuation, as shown in Table 2. In this table, it is also possible to note that the main reason for discontinuation of BF is "lack of milk".

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## Discussion

The prevalence of BF during the first two months of the infants life in the present study was greater than in others,<sup>12</sup> possibly due to the high percentage of women attending ME who participated in this study, as BF was influenced by ME, both with respect to early initiation and maintenance during the first two months of the infant's life. There are many similar studies in different regions and countries,<sup>3,5,10,13</sup> but other studies concluded that ME does not influence the maintenance of BF.<sup>14-16</sup> Sallam et al.<sup>9</sup> suggests the improvement of ME classes aiming at an actual increase of early initiation of BF and this suggestion is supported by the present results. Similarly, these results meet the recommendations of a Cochrane review by Lumbiganon et al.,<sup>11</sup> in which they stated that educational interventions during pregnancy regarding the duration of BF had not been evaluated yet, and called attention to the urgency of additional studies. It is very important not to confuse the educational interventions to promote BF with the support to BF due to particular needs.

**Table 1 – Relationship between maternity education, early initiation, and maintenance of breastfeeding.**

Variable	Total, n	Maternity education		Crude analysis OR (95% CI)	Multivariable analysis* OR (95% CI)
		No, n (%)	Yes, n (%)		
<i>Early initiation of breastfeeding</i>					
No	127	50 (39.37)	77 (60.63)	1 (reference)	1 (reference)
Yes	392	115 (29.34)	277 (70.66)	1.56 (1.01-2.42)	1.78 (1.14-2.78)
<i>Maintenance of breastfeeding during the first two months of the baby's life</i>					
No	184	75 (40.76)	109 (59.24)	1 (reference)	1 (reference)
Yes	315	81 (25.71)	234 (74.29)	1.98 (1.32-2.98)	1.73 (1.15-2.61)

95% CI, 95% confidence interval; OR, odds ratio.  
\* Adjusted by marital status, education level, pregnancy pathologies, planned pregnancy, and maternal age.

Concerning the reason for BF discontinuation, there was no significant difference among women who attended ME and those who did not. The main reason for abandoning BF was “lack of milk”, followed by “child was still hungry” and other reasons, including particularly breast problems, such as cracked nipples, mastitis, etc., consistent with the problems described by most studies in this respect,<sup>12,17-19</sup> although Olang et al. found medical prescription to be the first reason for BF discontinuation in children under six months, lack of milk was the second.<sup>20</sup>

Recall bias problems must not be disregarded in a survey, as women already know pregnancy results and this could influence their answers. The existence of a recall bias is unlikely because the information collected was produced in a relatively short time before the interview.

In case of a selection bias associated with failure to answer, this would have a minimal influence on the validity of results, because, initially, there are no reasons to believe that the women who answered are substantially different from those who did not.

Also, the confounding bias may not be completely disregarded because it is a limitation inherent to most observational studies. Given the level of existing evidence, it is not possible to perform a clinical trial due to ethical reasons. Initially, there is no basis to consider that not all confounding factors have been taken into account. For example, there are pathologies that require pharmacological treatment, and this medication could be contraindicated for BF. Similarly, it has been proved that younger mothers are less likely to breastfeed.<sup>21</sup>

In conclusion, ME is a useful and effective instrument that helps the initiation and maintenance of BF.

**Table 2 – Relationship between the reason for abandonment of breastfeeding and maternity education.**

Variable	Total, n	Maternity education		Crude analysis OR (95% CI)	Multivariable analysis* OR (95% CI)
		No, n (%)	Yes, n (%)		
<i>Medical prescription</i>					
No	223	81 (36.32)	142 (63.68)	1 (reference)	1 (reference)
Yes	9	2 (22.22)	7 (77.78)	1.99 (0.36-20.08)	2.22 (0.40-12.23)
<i>Lack of milk</i>					
No	150	49 (32.67)	101 (67.33)	1 (reference)	1 (reference)
Yes	99	41 (41.41)	58 (58.59)	0.68 (0.39-1.20)	0.64 (0.37-1.10)
<i>Child still hungry</i>					
No	159	56 (35.22)	103 (64.78)	1 (reference)	1 (reference)
Yes	95	35 (36.84)	60 (63.16)	0.93 (0.53-1.64)	0.89 (0.52-1.55)
<i>Mother personally did not want to continue breastfeeding</i>					
No	221	76 (34.39)	145 (65.61)	1 (reference)	1 (reference)
Yes	9	6 (66.67)	3 (33.33)	0.26 (0.04-1.27)	0.30 (0.66-1.36)
<i>Resuming work</i>					
No	224	79 (35.27)	145 (64.73)	1 (reference)	1 (reference)
Yes	7	3 (42.86)	4 (57.14)	0.72 (0.19-5.09)	0.96 (0.19-4.90)
<i>Other reasons</i>					
No	90	43 (47.78)	47 (52.22)	1 (reference)	1 (reference)
Yes	94	32 (34.04)	62 (65.96)	1.77 (0.93-3.35)	1.76 (0.96-3.25)

95% CI, 95% confidence interval; OR, odds ratio.  
\* Adjusted by marital status, education level, pregnancy pathologies, planned pregnancy, and maternal age.

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## Conflicts of interest

The authors declare no conflicts of interest.

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