








## Breastfeeding knowledge and relation to prevalence\*

Conhecimentos sobre aleitamento e a relação com a sua prevalência  
Conocimientos sobre lactancia y relación con su prevalencia

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### ABSTRACT

**Objective:** Determine the level of knowledge about maternal breastfeeding and analyze to what extent this influences the intention to breastfeed after the introduction of infant feeding at the 6th and 16th weeks and at 6 months postpartum. **Method:** Prospective descriptive study conducted with pregnant women in Galicia (Spain). By means of a self-filling questionnaire, data were collected on the intention of the woman to feed the newborn and their knowledge about breastfeeding. Pregnant women were also contacted at the 6th and 16th weeks and at 6 months postpartum to know the type of feeding they gave their child. **Results:** 297 pregnant women participated in the study, of which 90.4% wanted to exclusively breastfeed their baby, however, only 28.2% continued up to 6 months. The level of knowledge about breastfeeding was regular and it was observed that it influences both the intention and the type of feeding of the newborn, thus it is an element to be considered when developing educational strategies aimed at increasing breastfeeding rates. **Conclusion:** The level of pregnant women's knowledge about breastfeeding is regular and influences the choice of how to feed their babies and the duration of exclusive breastfeeding. Strategies should be implemented to increase knowledge and improve breastfeeding rates.

### DESCRIPTORS

Breast Feeding; Knowledge; Pregnancy; Maternal-Child Nursing; Health Education.

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## INTRODUCTION

Breastfeeding (BF) is the ideal food source for the newborn (NB), besides providing numerous benefits to the mother and society<sup>(1-4)</sup>. The World Health Organization (WHO) recommends exclusive breastfeeding (EBF) up to 6 months and, only afterwards, the introduction of complementary feeding while maintaining BF up to 2 years or older<sup>(5)</sup>. However, many countries do not follow these recommendations. Specifically, in Brazil, the prevalence of EBF decreases dramatically over time and varies greatly according to the zones (between 27% and 56%, according to the latest national survey)<sup>(6)</sup>, and the same occurs in Spain<sup>(7)</sup>.

Numerous factors have been positively and negatively related to the start and duration of BF<sup>(8)</sup>. Especially those associated with the social and cultural environment are highlighted, as BF is not an instinctive behavior<sup>(9)</sup>. Thus, it has recently been suggested that the level of competence of women on the topic could lead to differences in the exclusivity and duration of BF<sup>(10-11)</sup>. Establishing the level of knowledge about breastfeeding would also be interesting in order to outline intervention strategies to promote EBF in the NB.

The aim of this study is to determine the level of knowledge of pregnant women about BF and to analyze to what extent this influences the intention to breastfeed after the introduction of infant feeding at the 6th and 16th weeks and at 6 months postpartum.

## METHOD

### TYPE OF STUDY

A descriptive, prospective study was conducted between June 2014 and July 2015.

### SCENARIO

Ferrol health district, one of the 13 Health districts in Galicia. This District consists of 22 Health Centers, which serve people of different socio-economic levels, and 16 of these Centers have midwives. The follow-up of pregnancy in these centers is representative of that carried out in Galicia, an Autonomous Community in Spain. In seven of these centers, midwives voluntarily agreed to cooperate with the study.

### POPULATION

The sample consisted of 297 pregnant women in the third trimester of pregnancy that attended maternal education (ME) classes with the midwife at their health center during the data collection period.

Women aged 18 and over, gestating a single fetus, able to read and write in Spanish, and who understood the study instructions were invited to participate in the study.

The exclusion criteria were women whose pregnancy ended in fetal death, who would thus not have follow-up in the postpartum period or with a medical contraindication that would seriously hinder BF.

The sample size was calculated according to the average of pregnancies in the area in the 5 years prior to the start of the study, which was 1,175 deliveries/year. Based on these

data, and in order to obtain a statistical significance of 95%, with an accuracy of 3%, an expected proportion of 5% and approximately 15% of losses, the sample size of the study was defined as 204 women.

## DATA COLLECTION

All women who met the selection criteria were selected on the day they went to ME classes. Those interested in participating received an envelope from the lead investigator with the following documentation: study information sheet with instructions to complete the questionnaires; informed consent; socio-demographic data sheet; and basic BF knowledge questionnaire.

Women interested in participating volunteered to provide a form of contact used to collect information about the feeding of the baby during the postpartum period (Figure 1).

Three data collection tools were used:

### KNOWLEDGE QUESTIONNAIRE ABOUT BF

The basic BF knowledge questionnaire was prepared and validated by Ferro Sosa and Flores Condory<sup>(12)</sup>, who submitted it for evaluation by experts (seven health professionals) and also carried out a pilot test.

This questionnaire, consisting of a total of 22 questions, obtained a Cronbach Alpha result of 0.72, which indicates a reliable result<sup>(13)</sup>.

To determine the level of BF knowledge, each question in the questionnaire was evaluated and, depending on the number of correct answers, classified as follows:

*Poor level of knowledge: score of less than 9.5.*

*Regular level of knowledge: score of between 9.5 and 11.5.*

*Good level of knowledge: score greater than 11.5.*

In order to estimate the completion time for the questionnaire, the adequacy of the writing, any difficulties in understanding and whether the questions were adapted to the variables that they were intended to analyze, a pilot study was conducted. With the participation of 18 women, this study required the introduction of non-substantial modifications to adapt the questionnaire to the scope and objectives of the present study.

The "BF knowledge" variable was grouped into: good/regular and poor level of knowledge, to calculate its relationship with postpartum results.

### SOCIO-DEMOGRAPHIC DATASHEET

Socio-demographic information was structured in 11 questions that referred to age, marital status, level of studies, number of births, occupation, nationality, place of residence and the health center attending the pregnancy. It also asked about previous experience in BF (in cases of multi-parity) and what they thought about feeding their future baby in the first 6 months — with EBF, artificial breastfeeding (AF) or mixed breastfeeding (Mixed F). The variables "previous BF experience" and "future feeding intent" were grouped, except for the sample description, into: EBF and AF/mixed F.

## RECORD SHEET OF THE TYPE OF FEEDING GIVEN TO THE NB AT THE 6TH AND 16TH WEEKS AND AT 6 MONTHS POSTPARTUM.

The variables used were as follows:

- *EBF*: The infant receives only breast milk. Does not ingest any other food or drink. May receive drops, syrups or oral rehydration salts.
- *AF*: The infant receives artificial milk solely or together with other solid or semi-solid foods.
- *Mixed F*: The infant receives breast milk and can ingest any food or liquid, including artificial milk.

For data analysis, the variable “type of postpartum feeding” was grouped into two: EBF and AF/mixed F.

### ANALYSIS AND PROCESSING OF DATA

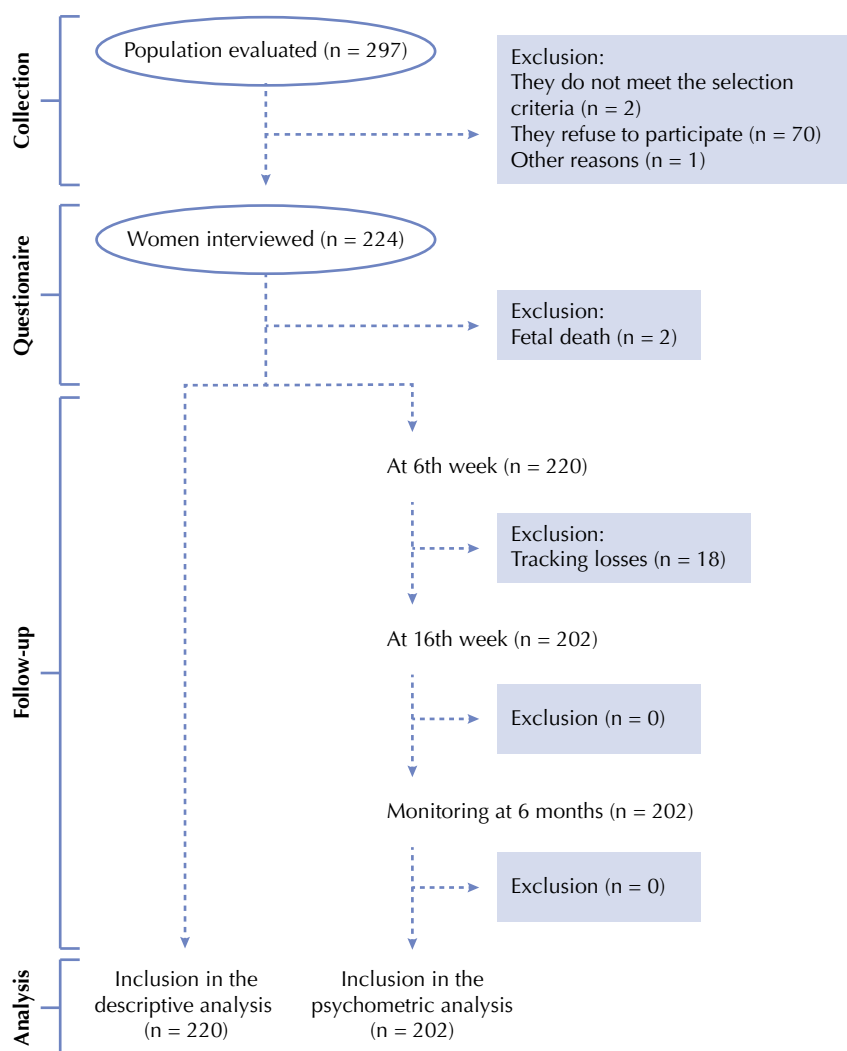
Statistical analysis was carried out using IBM SPSS, Version 20.0 (SPSS for Windows, SPSS Inc., Madrid,

Spain). The values of  $p < 0.05$  were considered statistically significant.

Records with more than 50% of blank variables were eliminated from the analysis ( $n=2$ ). In the remaining records, lost values were estimated using a regression method.

Descriptive statistics and contingency tables were used to represent the characteristics of the sample, using the chi-square test to: i) analyze the relationship between basic BF knowledge and socio-demographic factors; ii) study the relationship between basic BF knowledge and the NB feeding intention; iii) determining the relationship between basic BF knowledge and the type of feeding at week 6, week 16, and 6 months; iv) determine the relationship between the woman’s intention to feed the baby and the type of feeding at week 6 and 16 and 6 months postpartum.

Bivariate logistic regression was used to determine the relationship between socio-demographic factors and BF knowledge.



**Figure 1** — Scheme of participants in the study.

## ETHICAL ASPECTS

The collection of the sample began after obtaining the approval of the Galician Investigation Ethical Committee (registration number: 2014/064) and the signing of the Informed Consent Form (ICF) by the participants involved.

## RESULTS

### SAMPLE DESCRIPTION

Most of the participants were of Spanish nationality, married, aged between 18 and 34, had completed higher education and had paid work. Considering that only 22.3% of the women were multiparous, it should be noted that of these, 89.8% had previously breastfed, exclusively or partially (Table 1).

The vast majority of women (90.4%) wanted to feed their baby up to 6 months with EBF and when asked during the third trimester of pregnancy, only 9.6% wanted to do so with AF or mixed F.

The prevalence of EBF decreased over time (63.9% in the 6th week; 52% in the 16th week; and 28.2% at 6 months). The type of feeding and the mother's intention in the prenatal phase were statistically related. These differences are observed both at the 6th and 16th week and at 6 months after childbirth. Most women who intended to feed their babies with EBF did so.

According to the BF knowledge questionnaire, most women's level of BF knowledge was regular (55.5%). Only 25% had a good level of knowledge, and 19.5% had a poor level. The aspects in which women had less knowledge were: the recommendation to breastfeed the baby exclusively until 6 months of age; the preservation of breast milk; the management of diarrhea; and the correct breastfeeding posture (Table 3).

Socio-demographic factors that can influence women's BF knowledge are age, level of studies and parity. Specifically, older, multiparous and women with higher studies obtained higher scores in the knowledge questionnaire ( $p < 0.05$ ).

The woman's BF knowledge was related to her intention to breastfeed her baby. Those that thought of feeding their babies with AF or mixed F had less BF knowledge (9.5% good knowledge level) than those who planned to feed their babies with EBF (26.4% good knowledge level) ( $p = 0.01$ ).

Women who fed their babies with EBF had a higher level of BF knowledge than those who fed them with AF or mixed F in the 16th week postpartum, the limit of statistical significance being at 6 months postpartum (Table 4).

When bivariate logistic regression was performed considering breastfeeding knowledge as a dependent variable, the results showed that the level of knowledge was not influenced by age ( $p = 0.122$ ), marital status ( $p = 0.633$ ), level of studies ( $p = 0.572$ ), number of births ( $p = 0.618$ ) or occupation ( $p = 0.148$ ).

**Table 1** – Characteristics of the study population and level of BF knowledge – Galicia, Spain, 2014-2015.

Characteristics of the study population		Level of BF knowledge (n = 220)						P
		Good		Regular		Poor		
		n	%	n	%	n	%	
Maternal age	18-34 years old	27	19.9	77	56.6	32	23.5	0.02
	≥ 35 years	28	33.7	45	54.2	10	12	
Marital status	Married	36	28.8	67	53.6	22	17.6	0.32
	Cohabiting	16	19	52	61.9	16	19	
	Single	3	33.3	3	33.3	3	33.3	
Nationality	Spanish	54	25.4	117	54.9	42	19.7	0.68
	Other	1	14.3	5	71.4	1	14.3	
Level of studies	Secondary or lower	10	13.5	47	63.5	17	23.0	0.01
	Vocational training	10	20.8	28	58.3	10	20.8	
	Complete/incomplete higher education	35	36.5	47	49.0	14	14.6	
Parity	Primiparous	36	21.1	100	58.5	35	20.5	0.04
	Multiparous	19	38.8	22	44.9	8	16.3	
Occupation	Paid work	37	23.4	92	58.2	29	18.4	0.05
	Student	0	0.0	3	42.9	4	57.1	
	Domestic	18	33.3	27	50.0	9	16.7	
Previous breastfeeding experience*	Exclusive breastfeeding	13	43.3	13	43.3	4	13.3	0.64
	Artificial/mixed feeding	6	31.6	9	47.4	4	21.1	

\* Calculated among multiparous women.

**Table 2** – Relationship between future feeding intent and postpartum outcome – Galicia, Spain, 2014-2015.

Baby feeding type	Future feeding intent				p	
	EBF		AF/mixed F			
	n	%	n	%		
6 w	EBF	124	62.9	4	19	0.00
	AF/mixed F	57	28.9	16	76.2	
16 w	EBF	100	50.8	4	19	0.00
	AF/mixed F	81	41.1	16	76.2	
6 m	EBF	56	28.4	1	4.8	0.02
	AF/mixed F	125	63.5	19	90.5	

Note: AF: artificial feeding; EBF: exclusive breastfeeding; Mixed F: mixed breastfeeding; m: months; w: weeks.

**Table 3** – Basic knowledge questionnaire – Galicia, Spain, 2014-2015.

Question	Answer	N (220)	%
Do you know what breastfeeding is?	Yes	215	98.2
	No	4	1.8
	No response	1	0.5
During the first 6 months of life of the baby he/she should be fed with:	Breast milk plus aniseed tea	3	1.4
	<u>Breast milk only</u>	210	95.9
	Breast milk plus artificial milk	5	2.3
	No response	2	1
Up to what age should you breastfeed the baby exclusively?	Up to 2 years	134	61.2
	<u>Up to 6 months</u>	58	26.5
	Up to 12 months	26	11.9
	There is no age limit	1	0.5
	No response	1	0.5
When should you start breastfeeding the baby?	4 hours after birth	6	2.8
	<u>Immediately after birth</u>	198	93
	24 hours after birth	1	0.5
	The first time the baby cries hungrily	8	3.8
	No response	7	3.2
How often should the baby be breastfed?	Every 2 hours	20	9.3
	<u>Each time the child cries or there is demand</u>	193	89.8
	Every 6 hours	1	0.5
Your baby cries from hunger or thirst during the day and night. What would you do?	Administer artificial milk.	5	2.3
	<u>Breastfeed only</u>	203	94.4
	Administer breast milk and tea	6	2.8
	No response	6	2.8
	I'd have to give him/her artificial milk.	4	1.9
If you are working or out of the house. How should you feed your baby?	I'd breastfeed when I'm with the baby and feed with artificial milk when I'm separated from him/her.	8	3.7
	<u>I would preferably administer breast milk extracted at home or at work</u>	203	94.4
	No response	5	2.3
Breast milk stored at room temperature lasts for	1 hour	34	16.3
	<u>8 hours</u>	84	40.4
	Don't know.	90	43.3
	No response	12	5.5

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...continuation

Question	Answer	N (220)	%
If your baby under 6 months has diarrhea	I would suspend breastfeeding	6	3
	I would administer tea	2	1
	I would continue breastfeeding and administer an oral serum	76	38
	<u>I would breastfeed more often</u>	115	57.5
	No response	20	9.1
Which mothers should not breastfeed their babies?	Don't know	1	0.5
	Mothers who have a cough	1	0.5
	<u>Mothers with HIV/AIDS</u>	208	98.6
	Mothers who do a lot of laundry	1	0.5
What is the main reason for giving your baby breast milk?	No response	9	4.1
	To save money	0	0
	To provide the necessary nutrients and avoid respiratory diseases and diarrhea	200	91.3
	In order to spend more time in the company of my baby	4	1.8
Mark the diagram that shows the correct breastfeeding position *	Multiple reasons	15	6.9
	Correct	133	61.6
	Wrong	83	38.4
Mark the diagram showing the correct way to put your baby's mouth on the breast for breastfeeding *	No response	4	1.8
	Correct	207	95.4
	Wrong	10	4.6
At which breast should the baby recommence breastfeeding?	No response	3	1.4
	At either breast	24	11
	<u>With the breast not previously suckled</u>	194	89
In order to interrupt suckling	Pull the nipple so that the baby releases it	12	5.5
	<u>Introduces a finger into the baby's mouth so that it releases the nipple.</u>	206	94.5
From whom should you seek information about breastfeeding?	Health staff	139	63.8
	Family members	7	3.2
	Friends	1	0.5
	Others	12	5.5
	From various sources	54	24.8
	No response	2	1

\*The correct answers are underlined.

**Table 4** – Relationship between the level of basic breastfeeding knowledge and postpartum outcomes – Galicia, Spain, 2014-2015.

		Level of BF knowledge				P	
		Good/Regular		Poor			
		N	%	N	%		
Postpartum feeding	6 w	EBF	110	85.3	19	14.7	0.019
		AF/mixed F	51	69.9	22	30.1	
	16 w	EBF	93	88.6	12	11.4	0.003
		AF/mixed F	68	70.1	29	29.9	
6 m	EBF	51	89.5	6	10.5	0.05	
	AF/mixed F	110	75.9	35	24.1		

Note: AF: artificial feeding; EBF: exclusive breastfeeding; Mixed F: mixed breastfeeding; m: months; w: weeks.

## DISCUSSION

The level of BF knowledge in pregnant women in the third trimester of pregnancy was regular, influenced by socio-demographic factors. Nevertheless, this

knowledge conditioned the intention, as well as the type of NB feeding.

Socio-demographic factors that relate to the level of BF knowledge are age, number of births and level of studies.

This fact underlines the importance of ME classes, especially for younger primiparous mothers and those with a lower level of studies, these being the most vulnerable population groups<sup>(14-16)</sup>.

Pregnant women with greater breastfeeding knowledge are those with a more positive disposition in relation to BF, related to intent and postpartum feeding, as may be seen in the results of this study. This discovery not only ratifies the need for pregnancy attention by specialist nurses who, in addition to exclusively clinical aspects<sup>(17)</sup>, should ensure that ME classes are started earlier, as already mentioned above, because some women decide to breastfeed after attending these classes, where they learned the many advantages of BF<sup>(18)</sup>.

The following aspects were highlighted in the results of the knowledge questionnaire:

Most participants considered that while away from their baby, they should preferably give them extracted breast milk. However, only 40% of mothers knew about the storage time of breast milk extracted at room temperature. This highlights the need to advise, especially working mothers, on the conservation of breast milk, with a view to reincorporating them into the working world, so that this does not become a reason for abandoning BF, as it is an argument often used to discontinue breastfeeding prematurely<sup>(19-20)</sup>.

Another important point is that women require information regarding the management of diarrhea. An important percentage of women would take measures without prescription, such as suspending the baby's BF, giving them teas or oral serum, probably due to lack of knowledge of the serious consequences that these actions, at such an early age, may trigger<sup>(21)</sup>.

Regarding the attitude to breastfeeding, 38% of mothers did not know the correct posture, which coincides with a study conducted in Brazil, in which more than half of the women did not know about correct breast handling or that there is a correct posture for breastfeeding<sup>(22)</sup>. It is necessary to place special emphasis on this aspect in ME classes with an eminently practical approach, in order to prevent problems derived from incorrect positioning of the baby<sup>(23)</sup>.

A point in favor of the effectiveness of classes is the finding that most women recognized that they had obtained information about BM from health personnel. This data places these professionals in a privileged position to provide women with up-to-date information based on scientific evidence. In addition, information obtained from non-health sources (media, social groups, family members, etc.) may not be useful, safe and accurate, and even perpetuate the idea that powdered milk is the norm<sup>(24)</sup>.

The maintenance of exclusive breastfeeding was influenced by the women's level of knowledge. However, this relationship weakens with time, the limit of statistical significance being at 6 months, which shows the importance of monitoring lactating women, especially in the first 3 months postpartum, and not only performing educational interventions in the prenatal phase. This will allow the identification of the difficulties encountered and the performance of interventions that favor the development of maternal safety and satisfactory breastfeeding practice<sup>(25-26)</sup>.

The study presents a limitation inherent to its design. As a prospective observational study, follow-up losses (n = 20) were produced in the postpartum stage, and it was not possible to determine the causes of non-responses. The percentage of losses, which was low, does not call into question the results achieved.

On the other hand, the non-recording during the third trimester of pregnancy of the exact time in which women intended to give EBF (6 weeks, 16 weeks or 6 months) did not allow the establishment of an exact comparison with the postpartum results and therefore confirm whether the intention and the results coincide at the three aforesaid moments. However, it was based on the premise that women knew the recommendation to give EBF up to 6 months due to the information addressed in the ME classes.

Breastfeeding is a refined and personalized practice for both the mother and their baby, so women have the right to know its benefits when they make decisions on how to feed their future baby. Given that BF knowledge conditions the intention and the type of NB feeding, professionals can act in this field to identify women with a low level of knowledge, in order to developing educational strategies to improve BF rates.

The limitations of the study were related to the loss of follow-up – albeit scarce (8%) – and the lack of accurate records of the time that women wished to breastfeed.

## CONCLUSION

Most pregnant women had a “regular” level of BF knowledge. This level of knowledge conditions the intention and the type of feeding given to the NB.

Health professionals should identify women with a low level of knowledge and act to improve it, thus increasing BF rates and benefitting maternal and child health.

The fact that the family is an element that influences the decision on how to feed the newborn suggests the need for studies that deepen the attitudes and knowledge of parents and grandmothers about BF, and the effects they have on the mother's decision.

## RESUMO

**Objetivo:** Determinar o nível de conhecimento sobre aleitamento materno das gestantes e analisar em que medida este influencia a intenção de amamentar após a introdução da alimentação do lactente na 6ª e 16ª semanas e aos 6 meses pós-parto. **Método:** Estudo descritivo prospectivo, realizado com gestantes na Galícia (Espanha). Mediante um questionário de autopreenchimento, foram coletados dados sobre a intenção de a mulher alimentar o recém-nascido e os seus conhecimentos sobre o aleitamento materno. Também se contactou as gestantes na 6ª e 16ª semanas e aos 6 meses pós-parto para conhecer o tipo de alimentação que davam ao seu filho. **Resultados:** Participaram do estudo 297 gestantes, das quais 90,4% desejavam alimentar o seu bebê com aleitamento materno exclusivo, no entanto, somente 28,2% o realizou até os 6 meses. O nível de conhecimento sobre o aleitamento materno foi regular e observou-se que este influencia tanto a intenção como o tipo de alimentação do recém-nascido, é um elemento a ser

considerado na hora de desenvolver estratégias educativas direcionadas a aumentar as taxas de aleitamento materno. **Conclusão:** O nível de conhecimento das gestantes sobre aleitamento materno é regular e influencia a escolha da alimentação de seus bebês e a duração do aleitamento materno exclusivo. Devem-se implantar estratégias para aumentar os conhecimentos e melhorar as taxas de aleitamento materno.

## DESCRITORES

Aleitamento Materno; Conhecimento; Gravidez; Enfermagem Materno-Infantil; Educação em Saúde.

## RESUMEN

**Objetivo:** Determinar el nivel de conocimientos sobre lactancia materna de las gestantes y analizar en qué medida éste influye en la intención de amamantar y en la posterior alimentación del lactante a las 6 y 16 semanas y a los 6 meses posparto. **Método:** Estudio descriptivo prospectivo, realizado con gestantes en Galicia (España). Mediante un cuestionario autocumplimentado se recogieron datos sobre la intención de la mujer de alimentar al recién nacido y sus conocimientos sobre lactancia materna. Se contactó con las gestantes a las 6 y 16 semanas y a los 6 meses posparto para conocer el tipo de alimentación que daban a su hijo. **Resultados:** Participaron en el estudio 297 gestantes, de las cuales el 90,4% deseaba alimentar a su bebé con lactancia materna exclusiva, sin embargo, solo el 28,2% lo llevó a cabo a los 6 meses. El nivel de conocimientos sobre lactancia materna fue regular y se ha visto que influye tanto en la intención como en el tipo de alimentación del recién nacido por lo que es un elemento a tener en cuenta a la hora de desarrollar estrategias educativas encaminadas a aumentar las tasas de lactancia materna. **Conclusión:** El nivel de conocimiento de las gestantes sobre lactancia materna es regular e influye en la elección de alimentación de sus bebés y en la duración de la lactancia materna exclusiva. Se deben implantar estrategias para aumentar los conocimientos y mejorar las tasas de lactancia materna.

## DESCRIPTORES

Lactancia Materna; Conocimiento; Embarazo; Enfermería Materno-infantil; Educación en Salud.

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