

ORIGINAL PAPER
ΕΡΕΥΝΗΤΙΚΗ ΕΡΓΑΣΙΑ

Frequency of breastfeeding in postpartum women and related factors

OBJECTIVE To study the frequency and determinants of breastfeeding (BF) among women up to 5 days postpartum in a Peloponnese regional hospital. **METHOD** The study sample consisted of postpartum women (up to 5 days) who had given birth either vaginally or by Cesarean section in the Messinia General Hospital during the period June–September 2013. Data were collected using the BF questionnaire of the Athens Institute of Child Health. Statistical analysis was performed using the Statistical Package for Social Sciences (IBM SPSS Statistics), version 21.0 and the significance level was set at 5% ($p=0.05$). **RESULTS** Breastfeeding was initiated during the immediate postpartum period by 91.5% of the women and 94.6% had decided about BF before the delivery. Of those who did not breastfeed, 21.5% believed that if they had been better informed by the health care professionals about BF, they could have faced their health problems and eventually managed to breastfeed. Factors associated with BF were found to be age, health problems, work, educational level, marital status and country of origin. **CONCLUSIONS** The frequency of BF among immediate postpartum women was high. Factors affecting the process of BF are an integral part of a successful action plan, and addressing them could help its promotion.

The World Health Organization (WHO) recognizes that breast milk is an ideal food for infants as it is of high biological value and provides all the nutrients for healthy growth. The WHO proposed the following classification for breast feeding (BF): Exclusive BF, predominant BF and complementary BF.¹ BF is documented to protect infants from gastrointestinal and respiratory infections through the many antibodies that breast milk contains.^{1–3} A prospective study of 1,677 infants in Bangladesh confirmed the importance of BF for the survival of infants suffering from diarrhea and acute respiratory infections.⁴ Edmond and colleagues⁵ argue that 16% of infant deaths could have been avoided if all infants had been breastfed from the first day and 22% if BF had been started from the first hour after the delivery. These studies refer to developing countries, but Kramer and colleagues⁶ indicate similar results for developed countries. Low rates and early cessation of BF have a significant negative impact on the health and social well-being of mothers and their children, which is reflected in the social environment as excessive costs for

public health.⁷ A variety of social, economic and cultural factors appear to play a crucial role for BF, including maternal age, educational level, religion, ethnicity, work and mental health.^{8–10}

The aim of this study was to assess the frequency of BF and associated factors among women up to 5 days postpartum. A further target was to highlight the fact that BF is the most natural way for feeding infants up to 5 days, with benefits for both the infant and the mother. As a case study, a regional hospital, the Messinia General Hospital was selected. Through a representative random sample of postpartum women, the frequency of BF during the first 5 days was assessed, along with the determinants which the hospital could potentially promote and the maternal factors affecting the initiation of BF.

Given that the continuous acquisition of knowledge about the usefulness of BF is the best way to increase its frequency and continuation, investigation of the frequency of BF can encourage more mothers to breastfeed their babies in the knowledge that the healthy infant does not

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Συχνότητα και παράγοντες
μητρικού θηλασμού μεταξύ
λεχωρίδων

Περίληψη στο τέλος του άρθρου

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need to be fed anything other than healthy breast milk.

MATERIAL AND METHOD

Methodology

This descriptive-correlation study was carried out in the Midwifery Clinic of the Messinia General Hospital, in the Peloponnese region, between June and October 2013. The sample consisted of women (n=130) who had given birth vaginally or by Cesarean section in the previous 5 days. The exclusion criteria were: Psychiatric history, infectious diseases, treatment with cytostatics, nipple injury and addiction. Only women who gave their informed consent participated in the study. The study data were collected via the BF questionnaire designed by the Athens Institute of Child Health (ICH), which explores the frequency of and factors associated with BF, as proposed by the WHO. The reliability of the measurements clearly affects the value of research results and for this reason the ICH questionnaire was selected for the present investigation. The questionnaire is self-completed and questions were easily understood and the mothers responded quickly. Each questionnaire did not exceed, on average, 7 minutes to complete. The questions did not cause the mothers any trouble or embarrassment, and the majority answered willingly. Several women asked for more information, especially about the technique of BF, but a large proportion of women were unaware of the concept of baby-friendly hospitals. For women who could not read Greek, the questionnaire was completed by interview format. The final questionnaire consists of 43 questions related to: The nutrition of the infant, the practices of the hospital related to the health of infant, the mother's health, the mother's perceptions about BF and economic factors. Other questions provide information about demographic and socioeconomic characteristics.

Ethical issues

Written permission to conduct the study was ensured from the Head of the Scientific Institute. Permission for the use of the questionnaire was given by Ethics Committee of the ICH. The anonymity of participants was ensured through the coding of the questionnaires. The results were used only for the purposes of this study.

Statistical analysis

Statistical analysis was carried out using the Statistical Package for Social Sciences Statistics (SPSS) version 21.0. χ^2 -test was applied for the correlations between the variables and $p < 0.05$ was considered significant.

Limitations of the study

During data collection some difficulties were encountered, related mainly to communication with women from other coun-

tries and lack of reliability in the responses of gypsy women. Some women did not want to participate in the study, expressing the view that standard milk is now so sophisticated that it can meet the nutritional needs of the newborn infant.

RESULTS

Descriptive characteristics

In total, 130 women participated in the study, most of whom were aged between 31–35 years old (mean 28.5%) and married (84.6%). Most of the participants were Greek (68.5%) and were high school graduates (41.5%). The descriptive characteristics of the women in the study are presented in table 1.

The majority of women (91.5%) put the baby to the breast in the postpartum period (43.8% from the first postpartum day, 44.6% from the second postpartum day and 6.9% from the third postpartum day). About one third (36.2%) of women experienced health problems and difficulties when they began to breastfeed.

Regarding the maternal factors determining BF, the major causes of non-BF were: Insufficient milk (10%), turgidity of the breast (3.1%), inverted nipples (2.1%) and injuries to the nipple (1.5%), fatigue (3.1%), anxiety (2.3%) and drugs (1.5%). The majority of postpartum women in the study (94.6%) answered that they had decided to breastfeed before the delivery. The reason they reported for this decision was that breast milk is the best nutrition for their infants (62.3%), while 4.6% referred to the bond between mother and infant. In response to specific questions, 93.8% agreed that breast milk protects the baby against infections/allergies while 92.3% agreed that BF reduces the risk of breast cancer. The economic crisis did not affect the mother's decision to breastfeed for 44.6%, while 71.5% stated that BF is a pleasant experience.

Regarding the factors associated with BF that are related to the hospital, 96.2% of women acknowledged that they had support in their intention from the health care professionals. Regarding the technique of BF, 50.8% said that they were informed by the health care professionals, 11.5% by relatives/friends and 8.5% by the pediatrician, and 2.5% said that they consulted the Internet or books and 3.1% some other source. Concerning their satisfaction with the services and information on BF, 4.6% replied that they were extremely satisfied, and 18.5% and 12.3%, respectively that they were very satisfied and satisfied.

To the question "Did a health professional or a relative support or help you to breastfeed while you were in hospi-

Table 1. Descriptive characteristics of the sample of postpartum mothers.

Characteristics	(n=130)	Percentage (%)	Relative frequency
Age (years)	<20	9	6.9
	21–25	34	26.2
	26–30	32	24.6
	31–35	37	28.5
	35–40	16	12.3
	>40	2	1.5
Health problems	Yes	4	3.1
	No	125	96.2
	No answer	1	0.8
Smoking	Yes	30	23.1
	No	99	76.2
	No answer	1	0.8
Smoking during the pregnancy	Yes	18	13.8
	No	111	85.4
	No answer	1	0.8
Smokers at home	Yes	68	52.3
	No	62	47.7
Work during pregnancy	Yes	41	31.5
	No	88	67.7
	No answer	1	0.8
Educational level	No school	2	1.5
	Some classes of primary school	8	6.2
	Primary school	6	4.6
	Secondary school	14	10.8
	High school	54	41.5
	University/TEI	40	30.8
	Other	5	3.8
	No answer	1	0.8
Marital status	Married	110	84.6
	Unmarried	18	13.8
	Divorced/separated	1	0.8
	Widow	1	0.8
Country of origin	Greece	89	68.5
	Albania	30	23.1
	Bulgaria	4	3.1
	Russia	1	0.8
	Romania	1	0.8
	Australia	1	0.8
	Other	4	3.1

tal?"; the postpartum women answered: The hospital staff (35.4%), husband (18.5%), parents (7.7%), the pediatrician (4.6%) and friends (2.3%).

Regarding the perceptions of the postpartum women, 78.5% agreed that BF helps uterine contraction and reduces bleeding. A significant percentage (81.5%) disagreed with the view that women with small breasts cannot produce enough milk. The majority (81.5%) agreed that the breast can produce milk as needed and required to feed the infant, while 92.3% think that BF reduces the risk of breast cancer.

Concerning the requirements that a hospital should meet in order to be characterized as "baby-friendly", 43.1% sample answered that women should be informed about the benefits of BF and 11.5% that hospitals should create support groups for BF.

It is of note that 21.5% of those who did not breastfeed considered that if they had been informed and motivated by the health care professionals about BF, they would have addressed the problems encountered and eventually be able to breastfeed.

Correlations

Regarding the age of the women and the health problems experienced at the beginning of BF, in the age group 31–35 years, 34% of the women had difficulties (insufficient milk, turgidity of the breasts). The difference between the frequency of problems and difficulties at the beginning of BF in the various age groups was statistically significant ($\chi^2=12.496$, $p=0.029$).

The economic crisis was reported to affect the decision to breastfeed by 50% of women in the age group 26–30 years "to the maximum", and 43% in the age group 21–25

years "greatly". The differences between the age groups was not significant ($\chi^2=31.077$, $p=0.054$) (tab. 2).

No correlation was found between age and the concept "women with small breasts cannot produce enough milk" ($\chi^2=10.854$, and $p=0.054$).

Concerning the maternal educational level, 30% of high school graduates put the baby to the breast immediately after birth. The differences according to the educational level in the time when the mother put the baby to the breast was found statistically significant ($\chi^2=36.864$, $p=0.001$). In addition, a positive correlation was demonstrated between the educational level and the perception that BF is a pleasant experience ($\chi^2=42.633$, $p=0.004$) (tab. 3).

To the question "Do you believe that, if you had been better motivated/informed, you could have breastfed your infant?", 93% of married women who did not breastfeed responded that they could have breastfed if they had been better informed/motivated. The marital status was found to be correlated with the factor of motivation/information ($\chi^2=3.997$, $p=0.046$) (tab. 4).

The country of origin of the women affected the time when they put the baby to the breast for first time; 76% of the Greek women put the baby to the breast on the day of birth, but only 18% of the Albanian women and 2% of the Bulgarian women ($\chi^2=21.323$, $p=0.006$). In addition, 61% of the Greek women and 39% of the Albanian women who did not breastfeed stated that if they had been better motivated or informed they would have breastfed their infants ($\chi^2=14.429$, $p=0.006$) (tab. 5).

DISCUSSION

The aim of this study was to record the frequency of BF

Table 2. Correlation of age of postpartum women with other factors for breastfeeding.

		Age (years)						Total	Statistical test
		<20	21–25	26–30	31–35	36–40	>40		
Did you encounter health problems or difficulties when you started breast-feeding?	Yes	2 (4%)	10 (21%)	7 (15%)	16 (34%)	10 (21%)	2 (4%)	47 (100%)	$\chi^2=12.496$ $p=0.029$
	No	5 (6%)	24 (30%)	24 (30%)	20 (25%)	6 (8%)	0 (0%)	79 (100%)	
To what extent did the economic crisis motivate you to breastfeed?	Very much	2 (25%)	2 (25%)	2 (25%)	2 (25%)	0 (0%)	0 (0%)	8 (100%)	$\chi^2=31.077$ $p=0.054$
	A lot	2 (10%)	9 (43%)	5 (24%)	4 (19%)	1 (5%)	0 (0%)	21 (100%)	
	Enough	0 (0%)	6 (43%)	7 (50%)	0 (0%)	1 (7%)	0 (0%)	14 (100%)	
	Little	1 (4%)	7 (29%)	5 (21%)	6 (25%)	4 (17%)	1 (4%)	24 (100%)	
	Not at all	2 (3%)	9 (16%)	12 (21%)	24 (41%)	10 (17%)	1 (2%)	58 (100%)	
	Disagree	5 (5%)	24 (23%)	27 (25%)	33 (31%)	15 (14%)	2 (2%)	106 (100%)	

Table 3. Correlation of educational level of postpartum mothers with other factors for breastfeeding.

	Educational level					TEI	AEI	Other	Total	Statistical test
	None at all	Some classes of Primary school	Primary school	Secondary school	High school					
Breastfeeding is ...										
A pleasant experience	2 (2%)	5 (5%)	4 (4%)	9 (10%)	40 (43%)	14 (15%)	17 (18%)	1 (1%)	92 (100%)	
A tiring procedure	0 (0%)	0 (0%)	1 (25%)	0 (0%)	0 (0%)	1 (25%)	2 (50%)	0 (0%)	4 (100%)	$\chi^2=42.633$ p=0.004
An obligation to the infant	0 (0%)	2 (7%)	1 (4%)	4 (15%)	11 (41%)	5 (19%)	1 (4%)	3 (11%)	27 (100%)	
A mandatory solution	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (50%)	1 (50%)	2 (100%)	
When did you put the baby for the first time to your breast?										
1st day	2 (4%)	4 (7%)	0 (0%)	6 (11%)	17 (30%)	13 (23%)	12 (21%)	3 (5%)	57 (100%)	$\chi^2=36.864$ p=0.001
2nd day	0 (0%)	3 (5%)	2 (4%)	5 (9%)	32 (56%)	6 (11%)	7 (12%)	2 (4%)	57 (100%)	
3rd day	0	0	3	2	3	1	0	0	9 (100%)	

TEI: Technological Educational Institute, AEI: Advanced Educational Institute (university)

Table 4. Correlation between the marital status of postpartum mothers with other factors for breastfeeding.

	Marital status				Total	Statistical test
	Married	Unmarried	Divorced/ separated	Widow		
Do you believe that if you had been better motivated/informed you could have breastfed your infant?						
Yes	26 (93%)	2 (7%)	0 (0%)	0 (0%)	28 (100%)	$\chi^2=3.997$ p=0.046
No	6 (67%)	3 (33%)	0 (0%)	0 (0%)	9 (100%)	

Table 5. Correlation between country of origin of postpartum mothers with other factors for breastfeeding.

		Country of origin					Total	Statistical test
		Greece	Albania	Bulgaria	Romania	Other		
When did you put the baby for the first time to your breast?	1st day	42 (76%)	10 (18%)	1 (2%)	0 (0%)	2 (4%)	55 (100%)	$\chi^2=21.323$ p=0.006
	2nd day	40 (69%)	16 (28%)	2 (3%)	0 (0%)	0 (0%)	58 (100%)	
	3rd day	4 (44%)	2 (22%)	1 (11%)	1 (11%)	1 (11%)	9 (100%)	
Do you believe that if you had been more motivated/informed you could have breastfed your infant?	Yes	17 (61%)	11 (39%)	0 (0%)	0 (0%)	0 (0%)	28 (100%)	$\chi^2=1.429$ p=0.006
	No	4 (44%)	1 (11%)	1 (11%)	1 (11%)	2 (22%)	9 (100%)	

in women up to 5 days postpartum who had given birth in a regional hospital in the Peloponnese during the period 6.5.2013–6.10.2013, and the factors associated with BF. The rate of BF in the immediate postpartum period was high. Of the 130 women who took part in the survey, 69.2% gave birth by Cesarean section and 30.8% gave birth vaginally, and 119 women (91.5%) put the baby to breast in the first days after birth. The factors that were found to be associated with BF were health problems or difficulties experienced

by postpartum women at the beginning of BF, educational level, marital status, the economic crisis, information/motivation from the hospital and the country of origin of the mother. Several studies have shown a negative correlation between the initiation or duration of BF and Cesarean section,^{11,12} and epidural anesthesia has been reported to be negatively associated with BF.^{13,14}

The support provided by healthcare professionals is also important for BF. Of the total sample, 50.8% stated

that they had been informed about BF by healthcare professionals. Many researchers highlight the major role of nurses-midwives on the field of maternal education on BF,^{10,15-17} showing that women who have been educated about BF tend to breastfeed exclusively for a long time.^{18,19} In this study, 93.1% of the postpartum women stated that the baby was next to them during the day and that the mothers were able to breastfeed whenever required. Recent studies^{10,20-22} emphasize that keeping the infant next to the mother (the "rooming in" system) and full support by midwives are the most important factors contributing to the success of BF.

Regarding maternal age, it was found that the majority of the younger mothers put the baby to the breast soon after the delivery, although age was not associated with the frequency of starting BF postpartum. The age of the postpartum women was found to be strongly associated with problems and difficulties encountered at the beginning of BF ($p=0.029$). Specifically, the older women (31-40 years) were more likely to face health problems at the beginning of BF, which constitutes a suppressive factor for BF. Studies referring to the correlation between maternal age and BF provide contradictory evidence; researchers from New Zealand and Brazil reported lower rates of BF among younger women.^{23,24}

Strong correlation was demonstrated between the maternal educational level and the time when the baby was first placed to the breast. Specifically, 30% of high school leavers, 23% of technological (TEI) graduates and 21% of university graduates first put the baby to the breast on the first day. Correlation was found between the maternal educational level and the mother's perceptions about BF (question: "Breastfeeding is for you", $p=0.004$). The paternal educational level may contribute to the continuation of BF, as described in a study in Brazil, and it is likely that fathers with higher education are more aware of the benefits of BF thereby encourage their wives in this direction.²⁵ In the present study the higher the educational level of father, the more likely was the mother to breastfeed, although this correlation was not statistically significant.

Maternal work and paid maternity or pregnancy leave was not found clearly associated with BF. The correlation between BF and work (work/not work) has not been com-

monly reported in other studies, other than in the context of the type of work (full time, part-time), the opportunities provided by employers to continue BF and the time period of maternity leave.^{26,27}

The economic crisis affected positively the decision of women to breastfeed ($p=0.001$). The marital status of the mother was correlated with BF ($p=0.001$), and also there was significant correlation between the marital status of the mother and the item "Do you believe that if you had been motivated or better informed you would have gone to breastfeeding your baby?" ($p=0.046$). The higher the educational level of father, the more likely was the mother to breastfeed. However, this correlation was not statistically significant. Studies have shown that appropriate training by health professionals about BF contributes not only to the adoption of a positive attitude to BF, but to an increase in maternal self-confidence in dealing with the difficulties and problems that are likely to occur.²⁸

The country of origin of the mothers was found correlated with the role of problems or difficulties at the beginning of BF (question: "Did you cope with problems or difficulties at the beginning of BF?", $p=0.013$) and motivation and information (question: "Do you believe that if you had been motivated or better informed you would have gone to breastfeeding your baby", $p=0.006$). It is apparent that a high percentage of women who did not breastfeed could have breastfed if they had been better motivated or informed.

The maternal country of origin may affect the frequency of BF, possibly because BF is the most economical solution for poor families. Albanian and Greek women in the present study were more likely to breastfeed. This may be due to the fact that they were represented in the low income category. It has previously reported that foreign mothers in Greece breastfeed for longer.²⁹

In conclusion, based on the current crisis situation and given the importance of BF as a public health benefit, recording of the frequency of BF and the factors which affect its initiation, are an integral part of implementing a successful plan of action to promote BF. The provision of sufficient information to mothers and healthcare professionals (doctors, midwives, nurses) is essential, as is the protection of the right of a mother to breastfeed in public areas.³⁰

ΠΕΡΙΛΗΨΗ

Συχνότητα και παράγοντες μητρικού θηλασμού μεταξύ λεχωίδων

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ΣΚΟΠΟΣ Μελέτη της συχνότητας και των προσδιοριστικών παραγόντων του μητρικού θηλασμού σε λεχωίδες μέχρι 5 ημέρες μετά τον τοκετό σε Γενικό Νοσοκομείο της περιφέρειας Πελοποννήσου. **ΥΛΙΚΟ-ΜΕΘΟΔΟΣ** Πρόκειται για περιγραφική μελέτη, καθώς και μελέτη συσχέτισης. Το δείγμα αποτελείτο από 130 λεχωίδες (μέχρι 5 ημερών) που είχαν γεννήσει με φυσιολογικό τοκετό ή καισαρική τομή σε νοσοκομείο της περιφέρειας Πελοποννήσου κατά τη χρονική περίοδο Ιουνίου 2013–Σεπτεμβρίου 2013. Τα δεδομένα συλλέχθηκαν με τη βοήθεια ερωτηματολογίου του Ινστιτούτου Υγείας του Παιδιού. Η στατιστική ανάλυση των δεδομένων διενεργήθηκε μέσω του λογισμικού προγράμματος Statistical Package for Social Sciences (IBM SPSS Statistics), έκδοση 21.0. Εφαρμόστηκε η δοκιμασία χ^2 . Ως στατιστικό επίπεδο σημαντικότητας ορίστηκε το 5% ($p=0,05$), σε όλες τις αναλύσεις. **ΑΠΟΤΕΛΕΣΜΑΤΑ** Ποσοστό 91,5% των λεχωίδων θήλασαν τα μωρά τους αμέσως μετά τον τοκετό. Επίσης, το 94,6% είχε αποφασίσει για το θηλασμό πριν από τον τοκετό, ενώ το 21,5% εκείνων που δεν θήλασαν πίστευαν ότι, αν ήταν περισσότερο ενημερωμένες για το μητρικό θηλασμό από τους επαγγελματίες υγείας, θα μπορούσαν να έχουν αντιμετωπίσει τα προβλήματα υγείας και, τελικά, θα μπορούσαν να έχουν κατορθώσει να θηλάσουν. Παράγοντες που επηρεάζουν αρνητικά το θηλασμό βρέθηκε να είναι η μεγάλη ηλικία, η παρουσία των προβλημάτων υγείας, η εργασία της μητέρας, το χαμηλό μορφωτικό επίπεδο της μητέρας, η έλλειψη στήριξης από το οικογενειακό περιβάλλον και η χώρα προέλευσης. **ΣΥΜΠΕΡΑΣΜΑΤΑ** Η συχνότητα του θηλασμού μεταξύ των λεχωίδων του δείγματος ήταν υψηλή. Η πρόληψη των παραγόντων που επηρεάζουν τη διαδικασία του θηλασμού αποτελεί αναπόσπαστο τμήμα ενός επιτυχημένου σχεδίου δράσης που θα μπορούσε να βοηθήσει την προώθησή του.

Λέξεις ευρητηρίου: Λεχωίδες, Μητρικός θηλασμός, Νεογνά, Παράγοντες

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