

Breastfeeding Duration, Social and Occupational Characteristics of Mothers in the French ‘EDEN Mother–Child’ Cohort

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Abstract Socio-demographic characteristics of mothers have been associated with exclusive breastfeeding duration, but little is known about the association with maternal full- and part-time employment and return to work in European countries. To study the associations between breastfeeding, any and almost exclusive (infants receiving breast milk as their only milk) breastfeeding, at 4 months of infant’s age and the socio-demographic and occupational characteristics of mothers. We used the EDEN

mother–child cohort, a prospective study of 2002 singleton pregnant women in two French university hospitals. We selected all mothers ($n = 1,339$) who were breastfeeding at discharge from the maternity unit. Data on feeding practices were collected at the maternity unit and by postal questionnaires at 4, 8 and 12 months after the birth. Among infants breastfed at discharge, 93 % were still receiving any breastfeeding (83 % almost exclusive breastfeeding) at the 3rd completed week of life, 78 % (63 %) at the 1st completed month, and 42 % (20 %) at the 4th completed month. Time of return to work was a major predictor for stopping breastfeeding: the sooner the mothers returned to work, the less they breastfed their babies at 4 months of infant’s age, independently of full-time or part-time employment. The association was stronger for almost exclusive breastfeeding mothers than for any breastfeeding ones. In a society where breastfeeding is not the norm, women may have difficulties combining work and breastfeeding. Specific actions need to be developed and assessed among mothers who return to work and among employers.

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Background

Breastfeeding has been shown to have short- and long-term beneficial effects on infant health and it is widely recognised as the optimal infant feeding method. The World Health Organization (WHO) recommended exclusive breastfeeding for the first 6 months of life in 2001 [1]. In France, recommendations on the duration of exclusive breastfeeding changed from 4 months to 6 months in 2002 [2].

Exclusive or full breastfeeding rates at 3–4 months varied widely in Europe in 1998–2002, from 70 to 60 % in Scandinavian countries to 35 % in the Netherlands [3] and 16 % (at 3–5 months) in the UK [4], and any breastfeeding rates ranged from 90–75 %, to 47 % [3] and 30 % [4], respectively. In France, no reliable national data on breastfeeding duration are available but several studies suggest that breastfeeding rates are low [5]. Any breastfeeding rates of 15 % at 3–4 months were reported in 2000 [3] and studies based on small samples in the 1990s suggested a median duration of any breastfeeding of around 10 weeks [5]. Rates of any breastfeeding initiation were also lower in France than in other European countries [3] in the early 2000s, although they had significantly increased from 53 % in 1998 to 62 % in 2003 and 69 % in 2010 [6].

Socio-demographic characteristics of mothers have been associated with exclusive breastfeeding duration in Scandinavian [7, 8] and other European [9, 10] countries. These studies have shown that mothers who are older, married, multiparae, from a high social class or non-smokers breastfeed longer. Maternal occupational characteristics might also affect breastfeeding duration. In the early 2000s, studies in the UK [10–12] and the Netherlands [9] showed that maternal employment, specially full-time employment, was negatively associated with breastfeeding. Little is known about the independent effect of maternal occupational characteristics, particularly the time of maternal return to work and the full/part-time employment status, on exclusive breastfeeding duration.

Differences in parenthood and labour policies in European countries might have an impact on both breastfeeding practices and maternal employment [13]. France, the UK and the Netherlands had a relatively high percentage of working mothers with children less than 3 years of age: 47, 52 and 65 % respectively in 2006 [14]. However, maternity leave systems differ across these countries in their eligibility criteria for maternity leave payments and maximum duration. For instance, maternity leave maximum duration is 16 full paid weeks (up to 2,773 euros per month in 2006) for the 1st and for the 2nd child and 26 weeks for subsequent children in France; 16 full paid weeks in the Netherlands; and 26 paid weeks in the UK (90 % of average weekly earnings for the first 6 weeks and a statutory maximum of GBP 108.85 per week (in 2006) for the following weeks) followed by 26 unpaid weeks. Some European countries also offer the possibility to prolong the leave period [14], such as France where mothers also have the opportunity to take a parental leave for 3 years or to reduce the number of working hours.

The French situation concerning breastfeeding and maternal work is of particular interest in the mid-2000s, as the breastfeeding rate was relatively low [3] and maternal employment high [14]. Our aim was to study the associations between any and exclusive breastfeeding practices at

4 months of infant's age and socio-demographic and occupational characteristics of the mothers (time of maternal return to work and full-time employment), in a French mother–child cohort.

Methods

Data Collection

The EDEN (Etude des Déterminants pré et postnatals précoces du développement et de la santé de l'ENfant) is a prospective mother–child cohort in two French university hospitals. Its primary aim is the study of prenatal and early postnatal nutritional, environmental, and social determinants of children's development and health [15]. Pregnant women were recruited before 24 weeks of gestation from the maternity wards of Poitiers and Nancy University hospitals between 2003 and 2006. Recruitment periods lasted 27 months in each centre. Both hospitals provided the highest level of care (level 3) and admitted high risk pregnant women. They also admitted women with low risk pregnancies who could choose these maternities for many reasons including financial ones (public hospitals do not charge additional fees unlike private clinics) or because of the presence of specialized neonatal services.

The EDEN cohort included 2002 women (969 in Poitiers, 1,033 in Nancy) and represented an estimated 55 % of the eligible women giving birth in the two centres. The EDEN study received approval from the ethics committee (CCPPRB) of Kremlin Bicêtre on 12 December 2002. Files have been declared to the 'National Committee for Processed Data and Freedom' (CNIL). Written consent was obtained from the mother for herself at inclusion and for her newborn child after delivery.

An interview was carried out by a midwife during pregnancy to collect data on maternal characteristics: age, parity, educational level, family income, family origin, partnership status (marital status and living with a partner), tobacco consumption, employment (yes/no) and full-time or part-time employment during pregnancy. Medical records were used to extract data on mode of delivery, infant's characteristics at birth and during hospital stay (gestational age, birth weight and sex) and mode of infant feeding at discharge. Parents answered postal questionnaires at 4, 8 and 12 calendar months to collect data on infant feeding, partnership status, tobacco consumption and date of return to work after birth. Full-time or part-time employment was known during pregnancy and at 12 months.

Partnership status at 4 months after birth related to marital status (married or not) and whether the woman was living with a partner. Educational level referred to the highest diploma obtained: less than high-school, high

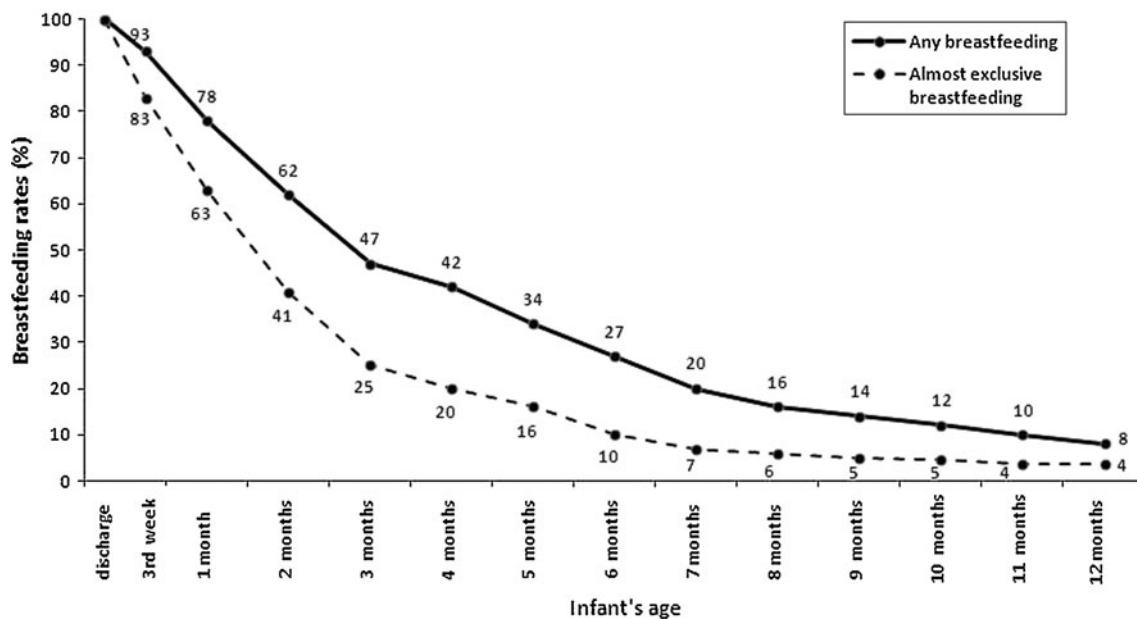


Fig. 1 Any and almost exclusive breastfeeding between discharge from maternity unit and 12 months of infant's age. Includes 1,339 any breastfeeding and 1,230 almost exclusive breastfeeding mothers who

were breastfeeding at discharge from the maternity unit. Infant's age in completed weeks or months

school diploma, some university (at least a 2-year university degree) and university degree (at least a 3-year university degree). Family origin distinguished two groups: mother, father or a grand-parent born in France (French), or one of these family members born abroad (foreign). Smoking at 4 months after the birth was classified as follows: non-smoker before pregnancy, smoker before pregnancy but non-smoker at 4 months, and smoker before pregnancy and at 4 months after birth. Return to work after birth referred to time of return to work (at 4 months after birth or before, between 5 and 8 months after birth, after 8 months).

In each postal questionnaire, mothers described the infant's consumption of breast milk, formula, cow's milk, bottled water (up to 3 completed months of age), tap water, other fluids, and solids. At 4 months, infant feeding information was collected for the first week, the 2nd to 4th weeks of life and then for each month between the 1st and 3rd months of infant age. At 8 and 12 months, mothers retrospectively answered the question: "How old was your baby when you introduced the following foods regularly: formula, cow's milk, tap water and solids?". In the three questionnaires, mothers answered the question: "Do you still breastfeed your infant?" and if they answered "No", they were asked to give the date when they had stopped. Data were verified by cross-checking infant feeding information obtained at four different points during the first year of life; missing values at 4 months were completed using subsequent questionnaires.

Almost exclusive breast infants received breast milk as their only source of milk, but they could have received other liquids or food. Any breastfeeding included all infants receiving breast milk: almost exclusive breastfeeding infants and those receiving partial breastfeeding (breast milk and formula).

Statistical Analysis

Out of the 2002 mother-infant dyads included in the cohort, 1,898 live births were eligible for our analysis. Exclusions included 24 dyads who did not meet inclusion criteria for the cohort, 14 fetal or infant deaths, 52 mothers who decided not to participate in the cohort and 14 dyads lost to follow-up. Feeding status at discharge from the maternity unit was known for 1,889 infants, including 1,339 infants breastfed at discharge. Data on infant feeding at 4 months of infant's age was available for 92 % ($n = 1,233$) of the infants breastfed at discharge.

We considered any and almost exclusive breastfeeding at discharge as breastfeeding during the first week of life, because the average length of stay in the maternity unit was 5.1 days in Nancy and 4.4 days in Poitiers. We then calculated breastfeeding rates at the 3rd completed week of life, and then at each completed month from 1 to 12 months of the infant's age.

Factors associated with breastfeeding at 4 completed months of infant's age (5th month of life) were studied. We

Table 1 Factors associated with breastfeeding at 4 months of infant’s age among mothers breastfeeding at discharge from maternity unit (n = 1339)

	N	Any breastfeeding				Almost exclusive breastfeeding			
		%	<i>p</i>	aOR	(95 % CI)	%	<i>p</i>	aOR	(95 % CI)
Maternal age, years									
≤24	164	26.8	<0.001	0.6	(0.4, 0.9)	14.0	0.006	0.7	(0.4, 1.4)
25–34	869	43.2		1		19.0		1	
≥35	200	52.0		1.2	(0.8, 1.7)	27.0		1.2	(0.8, 1.9)
Parity									
Primipara	580	39.7	0.005	1		15.3	<0.001	1	
1	431	41.1		0.9	(0.7, 1.3)	19.7		1.2	(0.9, 1.8)
≥2	221	52.0		1.1	(0.7, 1.6)	30.8		1.4	(0.9, 2.3)
Partnership status at 4 months after birth									
Married	685	46.3	0.02	1		21.5	0.35	1	
Cohabiting	449	38.1		1.0	(0.8, 1.3)	18.0		1.1	(0.8, 1.6)
Single	39	48.7		1.8	(0.8, 4.2)	17.9		0.9	(0.3, 2.2)
Maternal education level									
Lower than high school	265	29.4	<0.001	1		15.8	0.22	1	
High school diploma	208	37.0		1.7	(1.1, 2.6)	18.3		1.3	(0.8, 2.3)
Some university	279	45.2		2.6	(1.7, 4.0)	20.8		2.0	(1.2, 3.4)
University degree	461	51.0		3.4	(2.2, 5.3)	21.9		2.0	(1.4, 3.8)
Family origin^a									
France	968	40.2	0.004	1		17.5	<0.001	1	
Foreign	247	50.2		1.3	(1.0, 1.9)	27.5		1.6	(1.1, 2.3)
Family income during pregnancy, euros									
≤1,500	154	44.8	0.03	1		26.0	0.05	1	
1,501–2,300	336	36.9		0.5	(0.3, 0.8)	16.1		0.5	(0.3, 0.9)
2,301–3,000	348	41.1		0.4	(0.2, 0.6)	21.6		0.6	(0.2, 1.1)
≥3,001	389	47.3		0.4	(0.2, 0.6)	18.5		0.4	(0.2, 0.7)
Employment and return to work at 4 months after birth									
Not employed before birth	251	41.8	<0.001	2.3	(1.6, 3.5)	27.9	<0.001	7.1	(4.1, 12.3)
Employed before birth, not returned to work	521	53.9		3.2	(2.3, 4.4)	26.3		5.4	(3.4, 8.7)
Employed before birth, returned to work	433	28.9		1		6.5		1	
Maternal smoking at 4 months after birth									
Non-smoker before pregnancy	823	47.8	<0.001	3.2	(2.1, 4.9)	22.8	<0.001	2.6	(1.5, 4.4)
Smoker before pregnancy, non-smoker at 4 months	196	42.9		2.4	(1.5, 3.9)	16.3		1.5	(0.8, 2.9)
Smoker before pregnancy and at 4 months	205	22.4		1		10.7		1	
Infant sex									
Boy	640	40.0	0.07	1		18.3	0.22	1	
Girl	593	45.0		1.5	(1.1, 1.9)	21.1		1.4	(1.0, 2.0)
Centre									
Poitiers	514	41.4	0.56	1		19.3	0.78	1	
Nancy	719	43.1		1.0	(0.7, 1.2)	19.9		1.1	(0.8, 1.5)

p Pearson’s Chi-squared test for univariate analyses; *aOR* adjusted ORs controlled for all variables in the table; *CI* confidence intervals

^a Family origin includes whether parents and maternal grand-parents were born in France, or one of the family members (mother, father or a grand-parent) was born abroad (foreign)

chose this age because about half of breastfeeding mothers (44 %) had returned to work then: 15 % before 4 months after the birth and 29 % during the 4th month. In addition, changes in the French recommendations on breastfeeding

duration, from 4 to 6 months [2], were quite recent when we started recruiting the cohort.

The influence of the time of return to work and full- or part-time employment status at 12 months was studied in

Table 2 Factors associated with breastfeeding at 4 months of infant's age among women working during pregnancy and breast feeding at discharge from the maternity unit (n = 979)

	N	Any breastfeeding				Almost exclusive breastfeeding			
		%	<i>p</i>	aOR	(95 % CI)	%	<i>p</i>	aOR	(95 % CI)
Return to work after birth ^a									
Return to work at 4 months or before/full-time	246	27.2	<0.001	1		6.5	<0.001	1	
Return to work at 4 months or before/part-time	127	34.7		1.5	(0.9, 2.5)	7.9		1.3	(0.5, 3.1)
Return to work between 5 and 8 months/full-time	122	58.2		3.5	(2.1, 5.8)	22.1		4.2	(2.0, 8.6)
Return to work between 5 and 8 months/part-time	129	56.6		3.4	(2.0, 5.8)	22.5		4.4	(2.1, 9.3)
No return to work at 8 months	233	52.4		4.7	(3.0, 7.6)	32.2		10.6	(5.4, 20.7)
Maternal education level									
Lower than high school	170	29.4	<0.001	1		12.9	0.33	1	
High school diploma	154	35.7		1.5	(0.8, 2.7)	16.2		1.2	(0.6, 2.6)
Some university	236	44.9		2.9	(1.7, 5.1)	18.2		2.4	(1.2, 4.8)
University degree	408	49.3		3.8	(2.2, 6.5)	19.1		3.1	(1.5, 6.3)
Family income during pregnancy, euros									
≤1,500	60	55.0	0.04	1		26.7	0.11	1	
1,501–2,300	255	38.8		0.4	(0.2, 1.0)	14.5		0.4	(0.2, 0.9)
2,301–3,000	309	38.8		0.3	(0.1, 0.7)	19.1		0.4	(0.2, 1.0)
≥3,001	351	45.9		0.3	(0.1, 0.7)	16.2		0.3	(0.1, 0.7)

p Pearson's Chi-squared test for univariate analyses; *aOR* adjusted ORs controlled for all variables in the table and maternal age, parity, partnership status, family origin, maternal smoking at 4 months after the birth, infant sex, and centre; *CI* confidence intervals

^a Full or part-time work status at 12 months

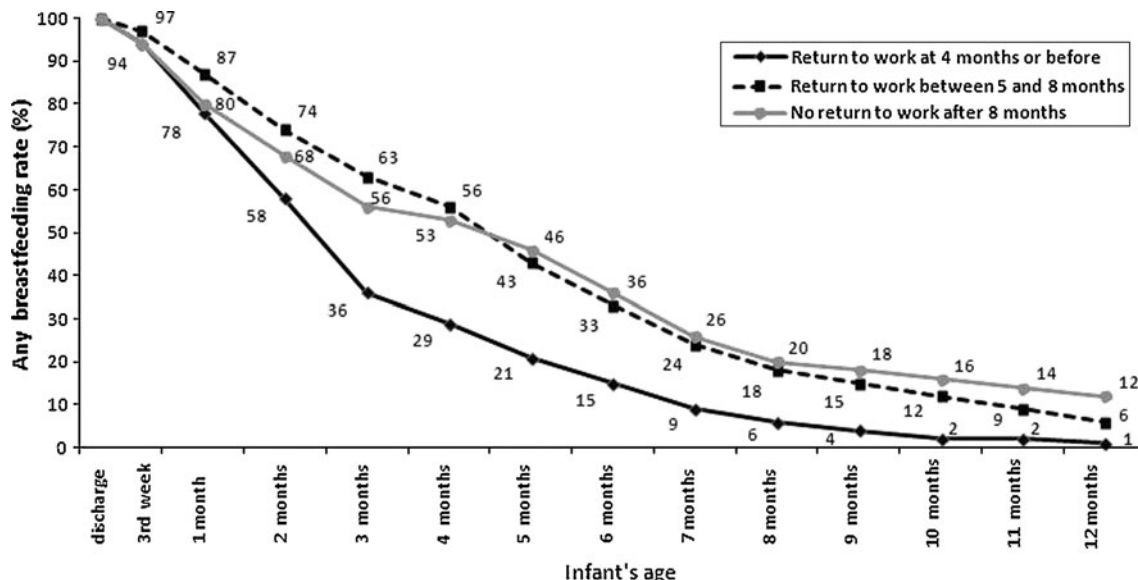


Fig. 2 Any breastfeeding between discharge from maternity unit and 12 months of infant's age among women who worked during pregnancy. Includes 979 mothers who worked during pregnancy

and who were breastfeeding at discharge from the maternity unit. Infant's age in completed weeks or months

the sub-sample of mothers who worked during pregnancy (n = 979). We assumed that women who were working part time at 12 months were also working part time when they resumed work. To validate that this assumption did

not affect our results, we also ran our analyses using the assumption that part-time work status was the same as during pregnancy. Maternal occupation was strongly correlated with time of return to work and full or part-time

employment, and therefore was not included in our analysis. Mothers with professional or intermediate occupations tended to return to work before 4 months and were more likely to work full-time at 12 months. In contrast, manual workers and shopkeepers tended to return to work later and to work part-time.

Pearson's χ^2 tests were used for bivariable analyses. Logistic regression models were used to study the associations between breastfeeding at 4 months of infant's age and variables significantly associated, at $p < 0.20$, with breastfeeding in bivariable analysis. Statistical analysis was performed using SAS 9.2 (SAS Institute Inc., Cary, NC, USA).

Results

At discharge, 91.9 % ($n = 1,230$) of infants included in our analysis were almost exclusively breastfed and 8.1 % ($n = 109$) were receiving mixed feedings (breast milk and formula).

Any breastfeeding decreased slowly between discharge and the 3rd completed week after birth (Fig. 1), and continued to decrease steadily between the 1st and the 3rd months of infant's age. Decreases were more marked for almost exclusive breastfeeding: the proportion of infants almost exclusively breastfed decreased by 17 % in the first weeks after discharge and by around 20 % each month between the 1st and 3rd completed months. At 4 months of infant's age 42 % of the mother's breastfeeding at discharge were breastfeeding and 20 % were almost exclusively breastfeeding.

Breastfeeding rates at 4 months of infant's age, both any and almost exclusive breastfeeding rates, were higher among older women, multiparae, those with a higher educational level and those with a foreign family origin (Table 1). Women who smoked were less likely to breastfeed than women who did not smoke at 4 months. Rates of any breastfeeding were high among both low- and high-income women, and those who did not return to work before 4 months. Almost exclusive breastfeeding was high among low-income women, but very low among women who had returned to work before 4 months. Girls were breastfed longer than boys. Breastfeeding at 4 months was not statistically associated with mode of delivery, gestational age, birthweight, or study centre.

After adjustment for all factors in Table 1, women were more likely to continue any or almost exclusive breastfeeding if they had a university degree, foreign family origin, a low family-income, had not returned to work at or before 4 months after birth and did not smoke before pregnancy. Girls were breastfed for longer than boys.

Table 2 shows breastfeeding rates at 4 months for women who worked during pregnancy. Any breastfeeding

at 4 months of infant's age was higher among women returning to work after 4 months. Almost exclusive breastfeeding at 4 months increased significantly with a later return to work. Rates did not differ between women working full-time or part-time at 12 months. No association was found when the analysis was based on working status during pregnancy (data not shown). Few mothers returning to work in the first year after delivery combined breastfeeding and work: 58 % had stopped breastfeeding before returning to work and 11 % stopped during the month they returned to work.

After adjustment, women were more likely to continue breastfeeding if they returned to work later, had a high level of education or had a low family-income. There were no statistical differences according to full- or part-time employment at 12 months or during pregnancy (data not shown for the employment status during pregnancy). No statistical differences were found when mothers working part-time during pregnancy and at 12 months were compared to mothers working full-time. Figure 2 shows a rapid decrease in any breastfeeding in the first months after birth for women who returned to work earlier (at 4 months after birth or before), but a slower decrease for women returning to work more than 4 months after birth.

Discussion

Any breastfeeding decreased slowly in the first weeks after discharge from the maternity unit, and continued to decrease steadily between the 1st and 3rd completed months of infant's age. Decreases were more marked for almost exclusive breastfeeding compared to any breastfeeding, particularly between discharge and the 3rd completed week after birth. Women were more likely to breastfeed, both any or almost exclusive breastfeeding, at 4 months if they had a university degree, a low family-income or did not smoke. Women who returned to work before 4 months of infant's age were less likely to continue to breastfeed than women who returned to work later, independently of being full- or part-time workers. The association was stronger for mothers who were almost exclusively breastfeeding.

The strengths of our study include its high quality data on breastfeeding. We were able to cross-check infant feeding information at different points during the first year of life and to complete missing data using subsequent questionnaires. In addition, recall periods of infant feeding were short as mothers reported infant feeding practices every 4 months, which provides valid and reliable estimates of breastfeeding duration [16]. Recruitment occurred during pregnancy and is not likely to be related to the maternal infant feeding choices during the 4 months after

birth. One limit of our study is that the EDEN cohort is not representative of the overall population of newborns in France. When we compared the women who agreed to participate in our cohort with the national sample of mothers in the National Perinatal Survey (NPS) in 2003 [6], we found that women in our cohort had a higher educational level (71 % with a high school diploma or higher in EDEN vs 43 % in the NPS), higher employment rates during pregnancy (75 vs 67 %) and were less likely to be foreign (2 vs 13 %). It is difficult to know how the higher social level of the cohort could have affected our results. Nevertheless the associations between maternal socio-demographic characteristics and breastfeeding at the maternity unit in this cohort were similar to those observed at the national level [17].

The breastfeeding rate at the maternity unit was higher in Nancy (82 %), but not in Poitiers (60 %), than the rates in the last National Perinatal Surveys in 2003 (63 %) and 2010 (69 %) [6]. This reflects wide breastfeeding variations between centres. Actually, a breastfeeding promotion programme with a lactation consultant had been implemented in the early 2000s in Nancy centre and could partly explain the higher breastfeeding rate at discharge in this centre.

The percentage of any breastfeeding decreased slowly in the first 3 weeks after discharge, suggesting that returning home after discharge did not strongly influence any breastfeeding. The breastfeeding decrease was less marked in our cohort than those reported in previous French studies in the 1990s [18, 19], but close to those reported in recent studies in the UK [11] or in the US [20]. Breastfeeding support after discharge from the maternity unit, such as home visits or peer support, is not systematically proposed to all women in France and is most likely rare in our cohort. This lack of support during the first weeks after birth might contribute to the higher cessation of almost exclusive breastfeeding.

Socio-demographic factors related to breastfeeding at 4 months, such as educational level or country of birth, were also related to breastfeeding initiation in our cohort and in France [17]. Thus social disparities in breastfeeding at 4 months in our cohort might be even greater if we considered all women and not only those breastfeeding at discharge. We also found that the effect of socio-demographic factors were quite similar for any or almost exclusive breastfeeding duration. For instance, infants with a foreign family origin were more likely to be mainly breastfed at 4 months than infants of French origin. The same trend has been shown previously for breastfeeding duration among foreign mothers in Sweden [21], and among ethnic minorities in the UK [11]. These results support the hypothesis that the cultural background of the mother is an important predictor in both initiation and duration of breastfeeding.

We used maternal education and family income as indicators of the social situation of women. Our results are

consistent with the literature that showed that women with a higher educational level breastfed longer [10, 20, 22, 23]. In contrast, associations between breastfeeding duration and income are not consistent. While most studies have found higher breastfeeding duration among high income women [10, 20], others have found higher odds of long breastfeeding durations among poor women [22] or a non significant association [23]. One explanation for higher rates among low income women may relate to the high costs of infant formula. A British survey showed that few women choose breastfeeding for this reason, but low-income women in the UK receive tokens to buy baby milk or infant formula [11]. Finally, our findings might result from the selection of a very particular sample of low-income women who had agreed to participate in the study and the follow-up.

Maternal employment at birth was not significantly associated with breastfeeding initiation in our cohort, after adjustment for confounding factors (data not shown). This result is in accordance with previous findings in France [17]. However, breastfeeding was longer among mothers who did not work before birth or return to work later. These findings are consistent with some studies [12, 24], but not all [10]. The present study provides additional evidence, showing that early return to work had a greater negative effect on almost exclusive breastfeeding than on any breastfeeding. These results could be partly explained by mothers who start introducing formula or stop breastfeeding in anticipation of their return to work.

Maternal leave provisions may impact the time of return to work, but their influence in breastfeeding duration is not easy to assess [13]. For example, in the mid-2000s, British women benefited from a longer maternity leave compared to Dutch women [14]. However, breastfeeding rates at 3–4 months of infant's age were higher in the Netherlands than those in the UK [3], suggesting an important influence of economic, social and cultural factors [13]. Furthermore the impact of recent policies towards extension of maternity leaves varied according to country. In UK this policy had little influence in the proportion of breastfeeding mothers who stopped breastfeeding before 6 months [11], whereas in Canada, extension of maternity leave, from a maximum of approximately 6 months to about 1 year, might have contributed to significant increases in the duration of any and exclusive breastfeeding [25].

We found no significant association between breastfeeding at 4 months and full- or part-time employment. This finding is in contrast with previous studies in Europe, which showed that women who worked part-time breastfed longer than women who worked full-time [10, 12], particularly for exclusive breastfeeding [9]. In addition, once mothers in our cohort had returned to work, few combined breastfeeding and work when compared with data from the

UK [11] or the US [24]. It seems that, in general, women in France do not feel comfortable combining employment and breastfeeding or are unable to do so. In this context, the time mothers spend at work does not influence their ability to maintain breastfeeding.

There is a need to support mothers who wish to combine breastfeeding and work. In most European countries, legislation relating to breastfeeding for working mothers does not meet the minimum standards recommended by the International Labour Organization (ILO) 183 Convention [26]. For example, in France and the UK, there is no specific legislation for job protection and non-discrimination for breastfeeding mothers or standards regarding paid breastfeeding breaks. We do not know to what extent mothers in our cohort and their employers were aware of breastfeeding mothers' rights in the workplace in France [27] and whether mothers took lactation breaks, or had access to facilities to breastfeed or to express milk at work. Different strategies combining work and breastfeeding have been described in the literature [28], such as pumping at the workplace, child care available on site, allowing the mother to leave work to go to breastfeed the infant, and having the infant brought to the work site. However, no randomized trial has been carried out to assess the effectiveness of workplace interventions, such as lactation breaks, and physical and childcare facilities, in promoting breastfeeding [29]. Nevertheless, observational studies suggest that workplace interventions (time off for baby's illness, flexible time, part-time work) [11] contribute to breastfeeding among working mothers. In addition, lactation support at work has been recognised as cost-effective by employers, decreasing for example absenteeism and staff turnover [30].

In a society where breastfeeding is not the norm, it is difficult to support working mothers who wish to continue breastfeeding. In France, recent proposals in relation to breastfeeding have sought to enable more women to combine work and breastfeeding and to promote breastfeeding in childcare settings [31, 32]. Recent attempts to increase maternity leave entitlements were unsuccessful [33]. Increasing the length of maternity leave in France could allow more mothers who initiate breastfeeding to continue and could promote mother-infant bonding for all mothers, whether they are breastfeeding or not. However, it might not be easy to implement a longer maternity leave without adverse effects on mothers' professional careers or without increasing social disparities between women who need to return to work for financial reasons and those who can choose to extend their maternity leave.

Conclusion

Breastfeeding at 4 months of infant's age was low in this study and failed to meet international [1] and French [2]

breastfeeding duration recommendations. Socio-demographic characteristics of the mothers had a similar effect on any or almost exclusive breastfeeding duration. Return to work was a major predictor for stopping breastfeeding before 4 months, particularly for almost exclusive breastfeeding. In a society where breastfeeding is not the norm, it appears that combining breastfeeding with employment is particularly difficult. Specific actions need to be developed among mothers who return to work in the first months after their child's birth and among employers and co-workers.

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