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Prevalence of breastfeeding in Italy: a population based follow-up study

Laura Lauria, Angela Spinelli and Michele Grandolfo*

Centro Nazionale di Epidemiologia, Sorveglianza e Promozione della Salute, Istituto Superiore di Sanità, Rome, Italy
**Now retired*

Abstract

Introduction. Breastfeeding is widely recommended. Updated data are needed to assess its prevalence and the effectiveness of interventions. Breastfeeding practices in Italy need to be promoted and monitored with updated and standard data The objective of this study is to provide estimates of the prevalence of breastfeeding and exclusively breastfeeding and to identify factors that may be modified to improve them.

Materials and methods. Two population-based follow-up surveys were conducted to evaluate the quality of maternal care in 25 Local Health Units (LHUs) in Italy during 2008-2011. Women were interviewed soon after giving birth and after 3, 6 and 12 months. Breastfeeding prevalences were estimated. A logistic regression model was used to investigate factors associated with exclusive breastfeeding at 3 months.

Results. Breastfeeding and exclusively breastfeeding prevalence estimates were 91.6% and 57.2% at discharge, 71.6% and 48.6% at 3 months, 57.7% and 5.5% at 6 months. At 12 months, 32.5% were still breastfeeding. Women who are more likely to exclusively breastfeed at 3 months are multiparous, more educated, resident in the north/center, have attended antenatal classes and groups of breastfeeding support, have practiced the skin-to-skin contact in hospital and have initiated breastfeeding early.

Conclusion. In Italy many mothers do not comply with breastfeeding recommendations. The promotion and support of breastfeeding is still necessary in Italy and still needs to be monitored with representative data. Actions should aim at empowering women, reducing social inequalities and improving practices in hospitals and maternal care services which encourage breastfeeding.

Key words
- breastfeeding
- maternal care
- social disparities

INTRODUCTION

WHO/UNICEF and scientific societies [1, 2] and published research [3-6] recommend that infants be exclusively breastfed up to 6 months of age and that they continue to be breastfed up to two years or even more if desired by mother and child. Despite this, exclusively breastfeeding (EBF) prevalences were still low; in 2006-2012, it was estimated that only 25% of infants were exclusively breastfed for 6 months in the WHO European Region [7] and was even lower in Italy (5% according to data collected in 1995-99) [8]. Evidence also suggests that breastfeeding (BF) is affected by the socio-demographic characteristics of mothers [9-11] as well as by factors related to hospital care [12-15]. Thus, BF should still be the object of public health interventions [1]. In Italy, there are some informative initiatives and promotional campaigns for BF [16]. Appropriate and updated prevalence data are important to assess the impact of these campaigns. In Italy estimates of the prevalence of BF and EBF have been obtained using different methodologies and are not always comparable [8, 17]. The objective of this article is to provide estimates of the prevalence of BF and EBF using a population based follow-up study conducted in 25 Local Health Units (LHUs) in Italy, and to identify factors that may be modified to increase BF prevalence.

METHODS

Two similar population-based follow-up surveys were conducted by the Italian National Institute of Health in 2008/2009 and 2010/2011, to evaluate changes in care during pregnancy, delivery and postpartum. The two surveys are part of a larger observational study on the quality of maternal care, which was approved by the Italian Ministry of Health in 2007. Details of the methodology are provided elsewhere [18]. Only 11 Regions out of 20 agreed to participate. Twenty-five of the 79 LHUs located in the participating Regions agreed to be involved in the surveys (between one and five LHUs from each Region). There were 7 from the north of the

Address for correspondence: Laura Lauria, Centro Nazionale di Epidemiologia, Sorveglianza e Promozione della Salute, Via Giano della Bella 34, Istituto Superiore di Sanità, 00162 Rome, Italy. E-mail: laura.lauria@iss.it.

country, 6 from the center and 12 from the south/islands. The target population was resident women who gave birth. Overall, the sample was representative of about 50 000 newborns in the participating LHUs (around 10% of all births in Italy). In both surveys, all resident women who had given birth within a defined period were eligible. The period was defined for each LHU as that within which 120 deliveries were expected according to the previous year's data. Some LHU increased the size of their sample in order to provide more precise local estimates. Exclusion criteria were: severe illness of mother or child; mothers with postpartum complications (infection, fever > 38 °C, haemorrhage > 1000cc). Participating mothers were interviewed within a few days of delivery in hospital or at home, and those who consented were re-interviewed 3, 6 and 12 months later. Questionnaires were administered by trained interviewers. A different questionnaire for each follow-up time was used: the first was structured in four sections regarding pregnancy, delivery, postpartum and socio-demographic characteristics [19]. The follow-up questionnaires included information on needs and type of assistance received. Questions about child feeding during the 24 hours before the survey were in all the questionnaires and the answers yielded two indicators: BF and EBF (only maternal milk). Since the socio-demographic characteristics and the BF and EBF prevalence estimates of the samples of Italian mothers of the two surveys were similar and not significantly different [19], for this analysis, the data of the two surveys were pooled. All the analyses were weighted by the reciprocal of the sampling fractions. BF prevalence estimates (95% confidence intervals) for selected infant ages are reported by mother citizenship (Italian - IT, Foreign - FO) and by geographical area to which LHUs belong (north, center, south/islands). The Pearson design-based F statistic for survey data was used to compare BF prevalences among geographical areas. The infant ages were: at discharge = 1-4 days; 3 months = 90-120 days; 6 months = 180-210 days and 12 months = 365-395 days. Adjusted odds ratios (OR) of EBF at 3 months by mother's socio-demographic characteristics (age, parity, education, employment and marital status, area of residence) and hospital/puerperium care indicators (skin to skin contact at partum, 24 hours rooming-in, initiation of BF within 1 hour of birth, attending BF supporting groups) and participation in antenatal classes were calculated. The analyses used the statistical software STATA version 11.

RESULTS

Overall 7293 mothers met the eligibility criteria of whom 6942 (95%) were interviewed at discharge. There were 6189 (89%) Italians (IT) and 753 (11%) foreigners (FO). After six months only 80% of the Italians and 64% of the foreign mothers were interviewed. Among Italians lost to follow-up, there were more less educated mothers (31.3% *vs* 25.5%), more multiparous (51.2% *vs* 44.6%) and more single/sep/wid (26.4% *vs* 23.2%). No other characteristics showed statistically significant differences between women completing and lost to follow-up at six months (not reported in table).

For Italian women, the prevalence of BF at discharge was 91.6%, with a slightly higher value in the north *(Table 1)*. The prevalence of BF was 71.6 % after 3 months, 57.7% at 6 months and 32.5% at 12 months. At 3 months a slight geographical difference emerges (north = 72.0%, center = 74.6% and south = 69.6%), which increases at the 6 and 12 months; in particular, at 6 months BF prevalence estimate in the south (54.3%) is significantly lower than in the center (64.0%) ($p < 0.001$). For foreign women the prevalence estimates of BF are similar to that of the Italians except at 12 months (24.1% *vs* 32.5%).

EBF at discharge was 57.2% and 48.6% at 3 months after deliver. EBF shows a wide and statistically signifi-

Table 1
Prevalences of breastfeeding from discharge to 12 months after delivering by type of breastfeeding and geographical area of residence in 25 Local Health Units in Italy, 2008-2011

	Any type of breastfeeding (%)*				Exclusive breastfeeding (%)*		
	At discharge N = 4244 % (95% CI)	3 months N = 3803 % (95% CI)	6 months N = 3590 % (95% CI)	12 months N = 3015 % (95% CI)	At discharge N = 3985 % (95% CI)	3 months N = 3723 % (95%CI)	6 months N = 3570 % (95%CI)
Italians (25 LHUs)	91.6 (90.6-92.6)	71.6 (69.8-73.4)	57.7 (55.6-59.7)	32.5 (30.4-34.6)	57.2 (55.3-59.0)	48.6 (46.6-50.6)	5.5 (4.7-6.4)
North (6 LHUs)	93.8 (91.8-95.8)	72.0 (68.4-75.6)	57.8 (53.7-62.0)	33.6 (28.9-38.3)	77.2 (73.7-80.8)	52.6 (48.6-56.7)	5.6 (3.9-7.4)
Center (7 LHUs)	90.9 88.9-92.9	74.6 (71.4-77.7)	64.0 (60.4-67.5)	36.0 (32.4-39.7)	59.6 (56.1-63.1)	59.0 (55.5-62.5)	10.3 (8.3-12.3)
South/islands (12 LHUs)	91.3 (90.0-92.7)	69.6 (67.0-72.3)	54.3 (51.3-57.4)	29.6 (26.6-32.6)	50.1 (47.6-52.7)	40.9 (38.0-43.8)	3.1 (2.1-4.0)
Foreigners	N = 498	N = 371	N = 343	N = 279	N = 464	N = 360	N = 341
Total (25 LHUs)	88.9 (85.5-92.1)	74.1 (68.6-79.6)	61.4 (55.1-67.8)	24.1 (18.4-29.8)	66.4 (61.4-71.4)	53.8 (47.6-60.1)	8.3 (5.0-11.7)

*Percentages are weighted to account for the type of study design.

cant variability by geographical area at each age. At discharge, the prevalence estimates are 50.1% in the south, 59.6% in the center and 77.2% in the north ($p < 0.001$). At 3 months they are 40.9% in the south, 59.0% in the center and 52.6% in the north ($p < 0.001$). Women resident in the center tend to exclusively breastfeed longer than women in the north and the south. At 6 months, almost all mothers (94.5%) have started supplementing their baby's diet. At discharge, the prevalence estimate of EBF is higher for foreign mothers than Italians, 66.4% *vs* 57.2%; at follow-up, the prevalence estimates become more similar.

EBF at 3 months is significantly higher among the multiparous, more educated, those who are not working, who are resident in the north or center; who practiced skin to skin contact at partum and initiation of BF within 1 hour of birth; who have attended antenatal classes and BF support groups.

Also, women who have rooming-in in hospital tend to be more likely to EBF at 3 months, although without reaching statistical significance *(Table 2)*. Similarly, no statistical significant effect was found for mother's age, marital status and citizenship (data not shown).

DISCUSSION

This study indicates that BF and EBF in Italy are still far from complying with recommendations [1]. Nevertheless, in comparison with a national study conducted in Italy in 1999 using telephonic interviews [8] which estimated prevalences of BF at 3, 6 and 12 months of 66%, 47% and 12% and of EBF at 3 and 6 months of 47% and 5%, our results show some improvement especially in BF. Prevalence estimates of BF, based on data from self-compiled questionnaires regarding women who had given birth during the previous 5 years are also produced periodically by the Italian National Institute of Statistics [17]. In their last national sample survey for 2013, 85.5% had ever BF and at age 2-3 months 43.9% were EBF and at 4-5 months 38.6% were EBF. Apart from the methodological differences, these prevalence estimates are not strictly comparable because of different cutoffs used for age but they seem to be lower than our estimates. However, the lower prevalences estimates of BF for women resident in the south of the country at 3 months compared to the north and the center are confirmed in both the above studies.

The logistic regression analysis found socio-demo-

Table 2
Adjusted ORs of exclusive breastfeeding at 3 months from birth

Mother's characteristics and hospital care indicators	N	% of EBF	ORadj*	95%CI
Parity				
primiparous	2649	44.3	1	
multiparous	2238	52.4	1.47	1.26-1.73
Education				
low	1397	41.3	1	
medium/high	3563	50.8	1.24	1.04-1.47
Employment status at 3 months				
not employed	1533	43.7	1	
not yet restarted working	2788	52.2	1.08	0.90-1.29
restarted working	639	39.8	0.74	0.57-0.95
Geographical area of residence				
north	1238	54.7	1	
center	1409	55.3	0.98	0.80-1.20
south/islands	2313	40.3	0.71	0.57-0.87
Attending antenatal classes				
no	2305	41.2	1	
yes	2634	54.3	1.41	1.20-1.65
Contact skin to skin at partum				
no	1637	41.3	1	
yes	3301	51.2	1.23	1.04-1.46
Rooming-in				
no	2186	42.1	1	
yes	2755	53.4	1.08	0.92-1.28
Breast attach within 1 hour				
no	2948	43.1	1	
yes	1983	57.3	1.35	1.15-1.59
Attending groups of BF support				
no	4252	45.9	1	
yes	642	64.9	1.82	1.45-2.29

*Also adjusted for not statistically significant variables: mother's age, marital status and citizenship.

graphic differences in BF while, after adjustment, no differences emerge between Italian and foreign women. It is confirmed that the prevalence estimate of BF is affected by reproductive history, education, residence and hospital procedures, such as skin to skin contact and early breast attachment. Furthermore antenatal classes and BF support groups, *i.e.* those activities related to women empowering, have effect.

A strength of this study is that it is a "population based" follow-up study with a high response rate within LHUs, conducted by trained interviewers. A limitation is that the sample of LHUs is self-selected which could be particularly sensitive to BF practices and the quality of maternal care services and thus, with higher prevalences of BF than among the LHUs which do not participate. Although the sample is not strictly nationally representative, it represents large areas spread throughout the national territory.

CONCLUSION

This study, relating to the years 2008-2011, seems to show a slightly improvement in BF practices in Italy from 1995-9, a trend which is not confirmed by the study for 2013. This highlights the need to monitor BF using standardized methods. The results of the three studies are sufficiently similar to indicate that the promotion of BF continues to be necessary to overcome the confounding factors, parity, residence and education which are not readily amenable to modification. However, this study has identified simple interventions, such as skin to skin contact and early breast attachment which require modest changes in procedures at very little cost. Rooming-in does not appear to have an important impact on BF. Other interventions, such as ante-natal classes and BF support groups are not without cost, but the benefits for BF (and the tranquility of the mothers) almost certainly make these a good economic investment.

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Authors' contributions

LL and AS, have equally contributed from the conceptualization of the manuscript to the interpretation of the results and in drafting the manuscript. LL has collaborated at implementing the project and conducted the analysis. MEG implemented the project and critically reviewed the manuscript. All authors approved the final manuscript.

Conflict of interest statement

None to declare.

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