Nutrition

Social determinants of breastfeeding in Italy

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Abstract

Background: Breastfeeding is surely the best way to feed an infant at least in the first six months of life.

Objective: To investigate the social determinants of breastfeeding behaviors among Italian women.

Methods: Data for this study were drawn from the Italian Institute of Statistics (ISTAT) survey conducted in 2005 which comprised a nationally representative sample of 50,474 households (128,040 subjects). This 2005 ISTAT survey asked several questions to women who delivered (n=5,812) in the past five years prior to the survey about their breastfeeding behaviours. Breastfeeding initiation rate and duration for ≥ six months were our main dependent variables while independent variables included socio demographics and health-related factors. Descriptive statistics, Pearson chi-squared test and multiple logistic regressions were performed.

Results: Our sample comprised 5,812 women. Rates of breastfeeding initiation and duration for e" six months were respectively 82.0 percent and 70.0 percent. Social determinants of breastfeeding initiation were older ages (OR: 1.029, p=0.019) and employment status (OR: 1.289, p=0.032). No social factor was associated to breastfeeding duration.

Conclusion: Rates of breastfeeding initiation and duration in Italy are rather high. Age and employment status were the main social determinants (breastfeeding initiation) found.

Keywords: Socioeconomic factors, epidemiologic factors, breastfeeding, Italy.

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Introduction

Exclusive breastfeeding is the healthiest way to feed an infant in the first six months of life[1]. According to an American Academy of Paediatrics policy statement, "breastfeeding ensures the best possible health as well as the best developmental and psychosocial outcomes for the infant"[2]. However, many child bearing women don't breastfeed. Data from several studies suggest that women of lower socioeconomic status (SES) are less likely to breastfeed their infants[3-5].

Maternal education attainment has been largely investigated in relation to breastfeeding initiation. Results constantly showed a positive association[3,6-10]. Income is another factor largely studied. It may be that because maternal income is associated with employment, it may detract from breastfeeding[11-13]. Maternal employment has been shown in some studies to decrease breastfeeding[14-16]. As pointed out above, maternal employment may be an obstacle because of time taken away from the baby (11-13); in fact some studies found that full-time, but not part-time, employment was negatively associated with breastfeeding initiation[17,18]. The characteristics of the workplace seem also to have an impact on breastfeeding behaviour. In fact, a study by Jacknowitz, in USA, showed that the availability of employer-sponsored childcare services increased the likelihood of breastfeeding six months after birth by 47 percent[19]. In addition, working an additional eight hours at home per week, at the mean, increased the probability of breastfeeding initiation by eight percent and breastfeeding six months after birth by 16.8 percent[19].

Other factors like single marital status[8,20], lack of support[11,21,22], low parity[4,23,24], preterm births[5,25,26], maternal obesity[23,25,27], smoking/ alcohol consumption[9,11,23,28-30], diabetes mellitus[26] and maternal distress have also been shown to be strongly associated with lower rates of breastfeeding initiation. Ethnic minority groups are frequently recorded as having high rates of positive breastfeeding practices but there are as always some exceptions[7,8,12,31,32].

Duration of breastfeeding is also important for the health of the newborn and has been shown to be

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associated with diverse socioeconomic factors[1, 11, 21, 33,34].

This study intended to investigate the social factors associated with breast feeding initiation and duration in Italy during the period 2000-2005 and thus update the current literature on the subject.

Methods

Design and tool

Data for this study were drawn from the Italian national institute of statistics (ISTAT) survey conducted in 2005[35]. This is a quinquenal multi purpose population-based cross-sectional survey with a complex design (stratified multistage random sampling). The 2005 survey comprised a nationally representative sample of 50,474 households (128,040 subjects). However the immigrants group was not mentioned in the survey. The survey excluded residents of rest homes, religious houses, penitentiaries and homeless subjects.

This 2005 ISTAT survey asked several questions to women who delivered (n=5,812) in the past five years prior to the survey about their breastfeeding behaviours including whether (yes vs. no) the mother ever breastfed her infant (breastfeeding initiation) and if the action was on-going. Duration of breastfeeding was assessed asking the women "*what age in months and weeks had the baby when he stopped suckling?*" The comprehensive questionnaire used in the survey (filled and administered by ISTAT professionals) included socio demographics, health, healthcare and health-related factors.

Variables

As dependent variables, we used breastfeeding initiation (as defined above) rate and breastfeeding duration rate for e" six months respectively while explanatory variables consisted of all relevant available sociodemographics (age, marital status, education attainment, employment status, contractual conditions, income, etc…), health factors, healthcare and health-related behaviours and finally social support defined as availability of friends and/or neighbours aids in situations of need (yes vs. no). Demographics and socioeconomic status were assessed by using age, residence (5 categories: North-West, North-East, Centre, South, Islands), housing conditions (availability of WC and bathroom, heating and staircase), education attainment (college levels vs. others), occupation status (employed vs. others), contractual conditions (term vs. termless contracts) and self-reported wealth using income as a proxy (optimal-adequate vs. scarce-inadequate).

Statistical analysis

Virtually all the variables were systematically dichotomized by appropriate procedures in order to perform univariate tests (T-Student test, Pearson chi-squared test). Multiple logistic regressions included binary and dummy variables but age was consistently treated as a continuous variable.

We first performed descriptive statistics, then followed with student t-test and chi-squared test in order to examine relationships between several variables and breastfeeding initiation/duration rates. We finally conducted multiple logistic regressions. Models included sociodemographic factors adjusted for potential confounders (healthcare, health and health-related factors and social support). Models' fitting was based on stepwise backward selection strategy while the diagnosis was conducted by recourse to the standard post logistic tests (Pseudo-R2, post logistic Hosmer-Lemeshow test and ROC curve). Levels of statistical significance were set to 0.05. Odds ratio with 95 percent confidence intervals were calculated to assess the adjusted risk of independent variables and those with $p<0.05$ were retained in the final models. Analyses were carried out by the statistical package 10.1/SE (36).

Results

Sociodemographics

Our sample comprised 5,812 women (respondent women who delivered the past five years prior to the survey). South macro area shared the highest proportion (31.6 percent; n=1,835) of this sample while the Islands had the lowest (10.7 percent; n=623 (Tab.1). Mean age of this population was 34 years (Standard deviation SD: 5.22) with a minimum of 17 and a maximum of 49. The bulk of this population group was concentrated in the age groups 4 (30-34 years; 34.40 percent) and 5 (35-39 years; 31.5 percent), 85.5 percent were married or living with the partner, 14.7 percent were university/college graduated or had some college education, 54 percent is actually employed and eight percent were unemployed searching job and finally only 3.5 percent rated their income as being optimal (tab.1).

Table 1: Distribution of the sample of breastfeeding women by socio demographic factors-Italy 2005

Variable	Categories	Absolute frequency (n)	Relative frequency (%)
Residence (geographic macro areas)	-North-West	1,136	19.6
	-North-East	1,228	21.1
	-Centre	990	17.0
	-South	1,835	31.6
	-Islands	623	10.7
	-Total	5,812	100.0
Age groups	< 18 years	4	0.1
	18-24 years	223	3.8
	25-29 years	885	15.2
	30-34 years	1,998	34.4
	35-39 years	1,831	31.5
	40-44 years	766	13.2
	≥ 45 years	105	1.8
	Total	5,812	100.0
Marital status	-Singles	436	7.5
	-Married/ living with partner	4,970	85.5
	-De facto separated	142	2.4
	-Legally separated	141	2.4
	-Divorced	93	1.6
	-Widower	30	0.5
	-Total	5,812	100.0
Education attainment	-Doctorate PhD and post College graduated	30	0.5
	-College graduated (4 years and over)	606	10.4
	-Other university graduated / levels	217	3.8
	-High school graduated (4-5 yrs)	2,254	38.8
	-Less than high school graduated	2,705	46.5
	-Total	5,812	100.0
Employment status	-Employed	3,131	53.9
	-Unemployed searching jobs	467	8.0
	-Housewives	2,141	36.8
	-Others	73	1.3
	-Total	5,812	100.0
Income (self-rated)	-Optimal	201	3.5
	-Adequate	3,319	67.4
	-Scarce	1,412	24.3
	-Insufficient	280	4.8
	Total	5,812	100.0
Social support (parents)	Yes	5,173	89.0
	No	639	11.0
	Total	5,812	100.0

Conituation of table 1

Variable	Categories	Absolute frequency (n)	Relative frequency (%)
Social support (friends)	Yes	3,869	67.0
	No	1,943	33.0
	Total	5,812	100.0
Social support (neighbour)	Yes	2,815	48.0
	No	2,997	52.0
	Total	5,812	100.0
Housing conditions (Heating)	Yes	5,258	90.5
	No	554	9.5
	Total	5,812	100.0
Housing conditions (WC & bathroom)	Yes	5,785	99.5
	No	27	0.5
	Total	5,812	100.0
Housing conditions (Elevator)	Yes	1,194	20.5
	No	4,618	79.5
	Total	5,812	100.0
Housing conditions (staircase)	Yes	2,040	35.0
	No	3,772	65.0
	Total	5,812	100.0

Breastfeeding behaviours

Of these 5,812 respondent women, 18 percent (n=1,044) never breastfed the index child, 82 percent (n=4,168) had done so at least once and 10.3 percent (n=599) were still breastfeeding. The North/Centre and South/the islands are areas which recorded respectively the highest (83.2 percent) and the lowest (80.5 percent) rates of breastfeeding initiation. Similar differentials were also found among several other social and health/health-related factors (table.2). Geographic location (p=0.008), age (p=0.048), education attainment (p=0.000), employment status (p=0.001), income (p=0.001), and social support/ availability of friends (p=0.007) were the sole social factors significant in univariate analysis (table.2).

Women who breastfed for six months or more were 70 percent (n=4,070); distribution of breastfeeding duration by specific factors is not presented in table.3.

Table 2: Proportions of women who initiated breastfeeding, overall and by selected sociodemographic and health factors-Italy 2005 (statistic : Pearson chi-square test p)

Variable	Categories	Percent	p
Breastfeeding initiation	Yes	82.0	-
	No	18.0	
Geographic area	North and Centre	83.2	0.008
	South and Islands	80.5	
Age groups (years)	<30	84.1	0.048
	>=30	81.6	
Current marital status	Married	82.1	0.942
	Others	82.0	
Previous marital status	Singles	82.1	0.675
	Others	79.5	
Education attainment	College levels and over	86.3	0.000
	Others	81.3	
Employment status	Employed	83.6	0.001
	Others	80.2	

Continuation of table 2

Variable	Categories	Percent	p
Contractual conditions	Termless contracts	82.2	0.237
	Term contracts	84.7	
Income (self-rated)	Adequate	83.2	0.001
	Inadequate	79.3	
Social support (availability of friends)	Yes	83.0	0.007
	No	80.1	
Social support (availability of neighbours)	Yes	82.6	0.255
	No	81.5	
Self-rated health status	Good	82.1	0.099
	Bad	73.7	
Parity	Primiparas	81.8	0.634
	Pluriparas	82.2	
Obese	Yes	75.2	0.002
	No	82.4	
Diabetes mellitus	Yes	78.9	0.541
	No	82.1	
Depression	Yes	82.0	0.926
	No	82.1	
Health disorders in pregnancy	Yes	81.2	0.116
	No	83.0	
Status of attended hospital	Public	82.0	0.891
	Private	82.5	
Public MCH centre (Consultorio)	Yes	84.9	0.017
	No	81.5	
Antenatal care attendant	Private gynecologist	81.9	0.160
	Others	86.5	
Antenatal classes attendance	Yes	84.7	0.001
	No	80.9	
Antenatal classes attendance (partner)	Yes	86.1	0.123
	No	83.4	
Term of birth	Term	82.6	0.000
	Preterm	54.1	
Delivery mode	Vaginal	84.9	0.000
	Cesarean	77.0	
Breastfed precedent child	Yes	93.0	0.000
	No	32.9	
Timing of breastfeeding	Timely (immediately)	85.3	0.000
	Delayed	79.0	
Twin births	Yes	63.4	0.000
	No	82.4	
Rooming-in	Yes	84.6	0.000
	No	78.0	
Current smoking status	Yes	78.9	0.005
	No	82.7	
Pre-pregnancy smoking status	Yes	80.2	0.056
	No	82.5	

Table 3: Proportions of women who breastfed for ≥ 6 months, overall and by selected sociodemographic and health factors-Italy 2005 (statistic : Pearson chi-square test p)

Variable	Categories	Percent	P
Geographic areas	North and Centre	70.6	0.264
	South and Islands	69.2	
Age groups (years)	< 30	64.9	0.000
	>= 30	71.2	
Current marital status	Married	70.4	0.130
	Others	68.0	
Previous marital status	Singles	70.4	0.370
	Others	77.0	
Education attainment	College levels and over	74.0	0.008
	Others	69.4	
Employment status	Employed	71.0	0.345
	Others	69.4	
Contractual conditions	Termless contracts	71.0	0.940
	Term contracts	71.0	
Income (self-rated)	Adequate	70.0	0.309
	Inadequate	71.0	
Social support (availability of friends)	Yes	70.0	0.351
	No	71.0	
Social support (neighbours availability)	Yes	70.0	0.762
	No	70.2	
Self-rated health status	Good	70.0	0.545
	Bad	74.0	
Parity	Primiparas	70.0	0.760
	Pluriparas	70.2	
Obese	Yes	69.0	0.570
	No	70.1	
Diabetes mellitus	Yes	81.0	0.077
	No	70.0	
Depression	Yes	67.1	0.232
	No	70.2	
Health disorders in pregnancy	Yes	70.4	0.602
	No	70.0	
Status of attended hospital	Public	70.1	0.262
	Private	66.0	
Public MCH centre (Consultorio)	Yes	71.0	0.571
	No	70.0	
Antenatal care attendant	Private gynecologist	70.0	0.424
	Others	73.1	
Antenatal classes attendance	Yes	74.2	0.000
	No	68.2	
Antenatal classes attendance (partner)	Yes	77.0	0.019
	No	72.0	
Term of birth	Term	70.0	0.052
	Preterm	78.4	
Delivery mode	Vaginal	70.0	0.720
	Cesarean	70.3	
Rooming-in	Yes	70.1	0.882
	No	70.0	
Timing of breastfeeding	Timely (immediately)	71.0	0.101
	Delayed	69.1	
Breastfed precedent child	Yes	67.3	0.000
	No	84.0	

Continuation of table 3

Variable	Categories	Percent	P
Twin births	Yes	60.0	0.017
	No	70.2	
Current smoking status	Yes	65.0	0.000
	No	71.0	
Pre-pregnancy smoking status	Yes	66.2	0.001
	No	71.1	

Detailed results of multivariate analyses are presented in table 4 (only breastfeeding initiation). Older ages (OR:1.029, 95CI: 1.005-1.055; p=0.019) and employment status (OR: 1.289, 95CI: 1.023-1.625; p=0.032) are the only social factors associated with breastfeeding initiation while no significant social determinant of breastfeeding duration was found.

Finally, reasons for not breastfeeding (not displayed in tables!) included lack of milk (63.4 percent), newborn's difficulties in sucking milk (14 percent), maternal health problems (10 percent), new-born health problems (six percent) and social problems like lack of time and employment constraints (three percent).

Table 4: Logistic regression for breastfeeding initiation: socio demographics adjusted for healthcare, health-related factors and social support-Italy 2005

Breastfeeding initiation	Odds Ratio	P>|z|	[95% Conf.	Interval]
Have not breastfed precedent child	0.036	0.000	0.028	0.045
Term births	3.076	0.001	1.549	6.112
Singleton births	2.340	0.002	1.363	4.016
Employed	1.289	0.032	1.023	1.625
Obese	0.457	0.000	0.297	0.702
Have not attended the public MCH centre	0.641	0.007	0.463	0.887
Age	1.029	0.019	1.005	1.055

Logistic regression: Prob > chi2 = 0.0000 Pseudo R2= 0.3280
Postlogistic Hosmer-Lemeshow test: Prob > chi2 = 0.9015
Post logistic ROC curve: Area under ROC curve = 0.8398

Discussion

Overall, 82 percent (n= 4,768) of the women from this sample had breastfed their infants at least once. This is substantially similar to values reported in studies conducted in many other countries worldwide and higher more than some others[3,7,12,37-41]. Precedent population-based studies conducted in Italy, also using nationally representative samples, showed breastfeeding initiation rates of 89 percent (n=3,500) in 1999 in Banderali's study and 85.3 percent (n=1,601) in Giovannini's. The latter had evidenced significant geographic differentials with rates ranging from 75.8 percent in the islands to 90.8 percent in North-east area[42,43].

In our study, the highest scores were also recorded in the North-East geographic area (86.4 percent) and among age the group 25-29 years (84.4 percent) while the lowest were found in the Islands (76.1 percent) and among the age group > 44 years (74.3 percent). This geographic differential, also reported in the study of Giovannini, is consistent with the well-known socioeconomic differential North-South in health already documented in Italy[43,44]. Another Italian study conducted in Liguria region in 2003, however of a different design (a cohort hospital-based study) and a more limited scale (n=757), showed rates of breastfeeding initiation of up to 97.3 percent at discharge[34].

As showed in a precedent paragraph, the proportion of women who breastfed for six months or more after childbirth were 70 percent (table 5), this is a very satisfactory score if compared to the 19 percent at six months reported in a precedent Italian study[43].

We found a significant positive association between breastfeeding initiation, age, education attainment, high income and social support, a result consistent with international literature[3,5-9,21,31,45]. In fact elders, highly educated and wealthy women are

usually expected to have better breastfeeding behaviours. Our study did not find (adjusted model) an association between breastfeeding initiation and marital status despite the fact that this association is widely reported in literature[8,11,14.] The fact also that we found a positive association between employment status and breastfeeding initiation is in odd. In fact, employed women are frequently recorded as having lower likelihood of breastfeeding[11-14]. Bias in data collection or management is improbable but can't be ruled out. For example the response rate of this survey was not specified, a defect with potential impact on the results. If this rate was low, it might have had a significant negative effect on the representativeness of the study. Likewise the exclusion of the immigrants, currently an important socio-demographic group of Italian society with high birthrate, is a serious issue. Other alternative explanations include the fact that employed women usually are the most educated and so are probably more sensible with breastfeeding promotion programs or perhaps most of these working women were part-time employees, a factor which has been demonstrated to be positively associated to breastfeeding initiation[17,18]. However it was not possible to verify this hypothesis because this specific data was not available in the survey dataset. This singular fact deserves further investigations.

Several health-related factors were strongly associated with breastfeeding initiation, some as positive (term births, singletons, breastfed precedent child) and others as negative (obesity, have not breastfed a previous child and no attendance of the public MCH centre) determinants. This data has important policy and clinical implications because some of these factors are manageable for example obesity and attendance of the public MCH centre.

In our study, no available social factor was associated to breastfeeding duration (cut-off: six months) while several important social factors such as marital status and income had no effect on breastfeeding behaviours. We were not able to offer a valid explanation to this fact.

Finally, this study showed that the main reason for not breastfeeding as reported by the mothers was lack of milk (64.4 percent).

This study has several weaknesses. The most important probably include the non specification of the survey's response rate and the exclusion of the immigrants group.

Conclusion

Level of breastfeeding initiation rate among Italian women remains rather acceptable (82 percent). Contrary to international literature, our study did not find an association between breastfeeding initiation and some important potential socio demographic determinants (marital status, income etc). Age and employment status were the sole social factors (breastfeeding initiation) identified. Most women continued breastfeeding at least six months after childbirth (63.5 percent). Efforts have to be taken by health-policy makers, healthcare providers and various stakeholders in order to encourage good breastfeeding behaviours.

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