

# The effect of contraceptive counselling in the pre and post-natal period on contraceptive use at three months after delivery among Italian and immigrant women

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## Abstract

**Introduction.** Contraceptive counselling in the pre and post-natal period may be important for the use of postpartum contraception and prevention of induced abortion. This paper evaluates the use of postpartum contraceptives and the factors associated with it in a sample of Italian and immigrant women.

**Materials and methods.** Data are drawn from two population-based follow-up surveys conducted to evaluate the quality of maternal care in 25 Italian Local Health Units in 2008/9 and 2010/1. Descriptive analyses and logistic regression models for complex survey data were used.

**Results.** The use of effective contraceptives in the postpartum period is similar between Italians and immigrants (65%). Fifty-nine percent of Italians and 63% of immigrants received contraceptive counselling by natal care services. Women who received counselling are more likely to use effective contraceptives (Italians OR = 2.55 95% CI 2.06 - 3.14; immigrants OR = 4.01 95% CI 2.40 - 6.70).

**Conclusions.** This study supports the notion that health professionals should take every opportunity during pregnancy, childbirth and puerperium to provide information and counselling to improve knowledge and awareness of contraception.

## Key words

- postpartum
- contraception
- family planning
- contraceptive counselling
- immigrants

## INTRODUCTION

Italy is not a country with a long tradition of family planning. Only in 1971 the Constitutional Court ruled that the provision of the Italian Penal Code of 1930 prohibiting publicity on contraception was unconstitutional, and in 1975 it held that abortion was a human right. The same year Maternal and Child Health Centers (consultori familiari) were established and in 1978 induced abortion was legalised. Even now, Italy is one of the developed countries with the lowest levels of modern contraception usage. According to data from the last Italian National Fertility Survey conducted in 1995/96, 60% of women 15-49 years used contraception but only 38.9% reported use of modern methods [1]. A scarce use of modern contraception in Italy, and more specifically in the south of Italy, in comparison to other European countries, was also observed in the

European study of infertility and subfertility [2]; for example, withdrawal or withdrawal/periodic abstinence was reported by 16% of northern and 44% of southern Italians, compared with 2% of women from Denmark and Germany. A comparison of surveys carried out in the years 2001-2009 in 5 European countries (Italy, Spain, Greece, France and UK) and the USA [3] shows an increase in the use of modern contraceptives in Italy but it is still less than in other countries and with a high use of withdrawal, a low use of IUD and almost a total lack of sterilization.

In Italy, typically a woman plans to have 1-2 children, spends around 5 years of her life attempting pregnancy, being pregnant or post-partum and will spend around 30 years attempting to avoid pregnancy. Her chances of contact with a health care professional that deals with reproductive health are probably more frequent over

the limited years dedicated to reproduction compared to the rest of her life. During pregnancy and puerperium a woman comes into contact very often with maternal care services. The National Institute for Clinical Excellence (NICE) guideline [4] recommends that methods and timing of resumption of contraception should be discussed within the first week after childbirth and not discussing contraception antenatally is considered a missed opportunity for preventing unintended pregnancies [5, 6]. A recent revision of a Cochrane review concluded that, despite the low quality of the revised evidence, half of the evaluated interventions after childbirth led to fewer unplanned pregnancies or more contraceptive use [7]. In addition, several International Institutions, including the WHO, have recently proposed a statement for collective action for all programs that reach women during the first year following a birth to integrate postpartum family planning counselling and services into their programs [8]. Thus, providing contraceptive education should nowadays be a standard component of antepartum and postpartum care. Nevertheless in 2010, 146 million (130-166 million) women worldwide aged 15-49 years who were married or in a union had an unmet need for family planning [9] and in developing countries this unmet need was still very high in 2012, especially in sub-Saharan Africa (53 million [60%] of 89 million), south Asia (83 million [34%] of 246 million), and western Asia (14 million [50%] of 27 million) [10]. Considering specifically the postpartum period, demographic and health surveys indicate that almost 75% of women have an unmet need for family planning [11]. In Italy a sample survey carried out in 1999 evaluated the support and the information offered to women who delivered, with specific regard to resumption of sexual intercourse and postpartum contraception [12]. Sixty-three percent of the women reported they would use a contraceptive method at sexual resumption, but only 21% and 25% had received adequate information on sexual resumption and family planning during post-delivery hospital stay. Moreover, over half of the sample did not receive any information about contraception during antenatal care. In a more recent survey carried out in 2009 on the comparison of the maternal health care among immigrant and Italian women, it was found out that about 4% of immigrants and 2% of Italians did not intend to use contraception because of cultural or religious reasons, while 20% of immigrants and 14% of Italians reported that they were afraid or ignorant of the methods [13]. These results are a clear indication of lack of knowledge and information on contraception in particular among immigrant women.

Moreover, the number of immigrant women in Italy has increased to 8% over the years and they are now an important, heterogeneous subgroup of the population. In 2009, more than 50% of foreign residents in Italy were female and the proportion of births to immigrant women was 16.5% of all births [13]. According to the data of the surveillance system on induced abortion in Italy [14], while a continuous decreasing trend in the number and rate of induced abortion was reported since the 80s, a slowdown in the reduction was observed from

mid-90s due to the contribution of foreign women, who have higher rates of abortion in comparison to Italians. In 2010 the induced abortions among foreigners were 34.2% of all abortions (while in 1998 this percentage was 10.1%) and their abortion rate was 24.1 in comparison to the Italian rate of 6.6 per 1000 reproductive age women. The Italian National Institute of Health interviewed samples of immigrant women who underwent a voluntary abortion in Italy [15] to investigate their knowledge of reproductive choices. Among interviewed women, knowledge of reproductive physiology and contraception were scarce, although they showed a positive attitude towards family planning.

Thus, programs promoting contraception counselling during pre and post natal care can be important for preventing induced abortions both for Italian and foreign women [16-18].

The purpose of this study is to describe the use of contraception in a sample of Italian and immigrant women three months after they had delivered a baby, to identify factors associated with its use and, in particular, to evaluate the effect of having received information on contraception during pregnancy and postpartum care.

## DATA AND METHODS

Data for this study were obtained from two similar population-based follow-up surveys conducted by the Italian National Institute of Health in 2008/9 and 2010/1, to evaluate changes in pregnancy, delivery and postpartum care. The surveys were offered to all the 20 Italian Regions, but only 11 agreed to participate. Twenty-five of the 79 Local Health Units (LHUs) of the participating Regions agreed to be involved in the surveys. The target population was resident women who gave birth. Women were recruited and interviewed within a few days after the delivery and those who provided their consent were re-interviewed 3 months later. Questionnaires were administered by trained interviewers. The first questionnaire was structured in four sections regarding pregnancy, delivery, postpartum and socio-demographic characteristics. The follow-up questionnaire included the following two questions: have you received information on contraception to be used at the resumption of sexual intercourse?; have you chosen to use a method of family planning to avoid pregnancy? If yes, a question regarding which method they chose was also included.

All resident women who had given birth within a defined period of time were targeted in both surveys. The period was defined for each LHU as that within which at least 120 deliveries were expected according to the previous year's data. Moreover, some LHUs increased the size of their sample in order to provide more precise local estimates.

Exclusion criteria were: severe illness of mother or child; women with an active infection and fever  $> 38^{\circ}$ ; women with haemorrhage  $> 1000$ cc. For the purpose of this study, the data of the two surveys were pooled.

The main outcome analysed was the use of effective contraception (pill, barrier methods, IUD, sterilization, lactational amenorrhoea method (LAM)) classified as yes/no. The LAM to avoid pregnancy is based upon

the natural postpartum infertility associated with fully breastfeeding and it is over 98% effective in preventing pregnancy if correctly used [19]. As "LAM" was not listed explicitly among the contraceptive methods explained in the questionnaire, we have assumed that, if the woman chose to use a natural contraceptive method or "other" methods and if she also referred to exclusively breastfeed her baby, then she would be using the LAM. The main independent factors analysed were woman's citizenship and whether she had been informed about contraception by maternal care services.

According to their citizenship women were classified as Italians or Immigrants which were further classified as European, Asian, African and Latin American. We did not differentiate immigrants from developed countries from those from less developed countries (LDC) according to the most recently used classification of the Italian National Institute of Statistics, for two main reasons. First, we wanted to compare this study's results with the results of previous studies which did not use this classification; second, the overall proportion of foreign women from highly developed countries in the sample was very small, about 6%. Other factors considered in the analyses were: maternal education, employment status, age, parity and marital status. Education was classified as low ( $\leq 8$  years of school) or high ( $> 8$  years). Employment status before pregnancy was classified as employed/not employed. Maternal age at deliv-

ery was categorized in three classes,  $< 30$  years, 30-34 years and  $> 34$  years. Parity was categorized as primiparous and multiparous. Marital status was categorized as married and unmarried at the time of delivery; the latter category included women who were single, divorced, separated or widowed. A design-based F statistic (*i.e.* a corrected Pearson  $\chi^2$ ) was used for comparisons of Italians vs immigrants as well as for comparisons among different areas of origin. Further, two multivariate logistic models, which take account of complex survey data, were used to determine which variables were associated with using an effective contraceptive method among Italian and immigrant women. Interactions between each predictor and family planning counselling were explored. In addition, a sensitivity analysis was carried out in order to verify the robustness of the results.

In order to make the entire sample representative of the total population from which the LHU samples were derived, descriptive and multivariate analyses were weighted by the reciprocal of the sampling fractions. The analyses were conducted using the statistical software STATA version 11.

## RESULTS

Among the participating regions and LHUs, of the 7293 eligible women, 6942 (95%) were recruited and interviewed at delivery; 5903 (85%) were re-interviewed after three months. The following analysis focuses on

**Table 1**  
Maternal characteristics and geographic area of origin (weighted %)

| Characteristic                     | IT<br>N= 5320 |      | IM<br>N= 583 |      | P       | East Europe<br>N= 347 |      | Asia<br>N= 93 |      | Africa<br>N= 79 |      | Latin America<br>N= 64 |      | P       |
|------------------------------------|---------------|------|--------------|------|---------|-----------------------|------|---------------|------|-----------------|------|------------------------|------|---------|
|                                    | n.*           | %    | n.*          | %    |         | n.*                   | %    | n.*           | %    | n.*             | %    | n.*                    | %    |         |
| <b>Age</b>                         |               |      |              |      |         |                       |      |               |      |                 |      |                        |      |         |
| < 30                               | 1426          | 26.8 | 340          | 56.4 | < 0.001 | 205                   | 55.4 | 55            | 61.5 | 44              | 48.3 | 36                     | 60.3 | 0.273   |
| 30-34                              | 2015          | 37.8 | 149          | 27.6 |         | 87                    | 29.0 | 21            | 21.7 | 25              | 37.5 | 16                     | 21.4 |         |
| > 34                               | 1878          | 35.4 | 94           | 16.0 |         | 55                    | 15.6 | 17            | 16.8 | 10              | 14.2 | 12                     | 18.2 |         |
| <b>Parity</b>                      |               |      |              |      |         |                       |      |               |      |                 |      |                        |      |         |
| primiparous                        | 2831          | 54.8 | 304          | 51.4 | 0.217   | 196                   | 56.0 | 38            | 44.0 | 28              | 37.9 | 41                     | 65.8 | 0.017   |
| multiparous                        | 2403          | 45.2 | 274          | 48.6 |         | 148                   | 44.0 | 55            | 56.0 | 49              | 62.1 | 20                     | 34.2 |         |
| <b>Marital status</b>              |               |      |              |      |         |                       |      |               |      |                 |      |                        |      |         |
| married                            | 4135          | 76.5 | 425          | 70.1 | 0.271   | 265                   | 77.2 | 49            | 50.7 | 70              | 85.3 | 41                     | 62.8 | < 0.001 |
| unmarried                          | 1188          | 23.5 | 158          | 29.9 |         | 82                    | 22.8 | 44            | 49.3 | 9               | 14.7 | 23                     | 37.2 |         |
| <b>Education</b>                   |               |      |              |      |         |                       |      |               |      |                 |      |                        |      |         |
| low ( $\leq 8$ yr)                 | 1428          | 25.9 | 246          | 46.9 | 0.008   | 121                   | 35.7 | 66            | 74.7 | 43              | 51.8 | 16                     | 24.5 | < 0.001 |
| high ( $> 8$ yr)                   | 3895          | 74.1 | 337          | 53.1 |         | 226                   | 64.3 | 27            | 25.3 | 36              | 48.2 | 48                     | 75.5 |         |
| <b>Employment</b>                  |               |      |              |      |         |                       |      |               |      |                 |      |                        |      |         |
| no                                 | 1620          | 28.8 | 327          | 50.9 | < 0.001 | 193                   | 51.8 | 35            | 38.6 | 57              | 61.9 | 42                     | 65.5 | 0.111   |
| yes                                | 3703          | 71.2 | 256          | 49.1 |         | 154                   | 48.2 | 58            | 61.3 | 22              | 38.1 | 22                     | 34.5 |         |
| <b>Family planning counselling</b> |               |      |              |      |         |                       |      |               |      |                 |      |                        |      |         |
| no                                 | 2149          | 40.9 | 215          | 37.3 | 0.379   | 130                   | 36.5 | 27            | 30.4 | 35              | 52.4 | 22                     | 39.0 | 0.225   |
| yes                                | 3148          | 59.1 | 354          | 62.7 |         | 213                   | 63.5 | 55            | 69.6 | 42              | 47.6 | 42                     | 61.0 |         |

IT: Italians; IM: immigrants.

\*Figures do not add up because of missing values.

**Table 2**

Contraceptive use and kind of contraceptive method by geographic area of origin (weighted %)

| Use/intention to use                  | IT   |      | IM  |      | P     | East Europe |      | Asia |      | Africa |      | Latin America |      | P     |
|---------------------------------------|------|------|-----|------|-------|-------------|------|------|------|--------|------|---------------|------|-------|
|                                       | n    | %    | n   | %    |       | n           | %    | n    | %    | n      | %    | n             | %    |       |
| <b>Any contraceptive method</b>       |      |      |     |      |       |             |      |      |      |        |      |               |      |       |
| no                                    | 1495 | 26.7 | 174 | 27.6 | 0.869 | 121         | 33.3 | 13   | 12.8 | 24     | 32.8 | 15            | 24.6 | 0.034 |
| yes                                   | 3722 | 73.3 | 382 | 72.4 |       | 215         | 66.7 | 68   | 87.2 | 51     | 67.2 | 46            | 75.4 |       |
| <b>Effective contraceptive method</b> |      |      |     |      |       |             |      |      |      |        |      |               |      |       |
| no                                    | 1915 | 35.0 | 214 | 35.0 | 0.990 | 146         | 40.5 | 22   | 24.9 | 27     | 37.6 | 18            | 26.6 | 0.041 |
| yes                                   | 3302 | 65.0 | 342 | 65.0 |       | 190         | 59.5 | 59   | 75.1 | 48     | 62.4 | 43            | 73.4 |       |
| <b>Contraceptive method chosen</b>    |      |      |     |      |       |             |      |      |      |        |      |               |      |       |
| barrier*                              | 1649 | 45.2 | 173 | 47.5 | 0.835 | 85          |      | 38   |      | 27     |      | 22            |      |       |
| IUD*                                  | 64   | 1.6  | 9   | 2.5  |       | 5           |      | 2    |      | 2      |      | 0             |      |       |
| hormonal*                             | 1056 | 28.5 | 105 | 25.2 |       | 59          |      | 15   |      | 16     |      | 14            |      |       |
| LAM*                                  | 518  | 13.2 | 55  | 14.6 |       | 41          |      | 4    |      | 3      |      | 7             |      |       |
| tubal ligation/steril*                | 15   | 0.2  | 0   | 0    |       | 0           |      | 0    |      | 0      |      | 0             |      |       |
| natural /withdrawal                   | 342  | 9.3  | 33  | 9.1  |       | 18          |      | 9    |      | 3      |      | 3             |      |       |
| others                                | 76   | 1.9  | 7   | 1.2  |       | 7           |      | 0    |      | 0      |      | 0             |      |       |

IT: Italians; IM: Immigrants.

\*Effective contraceptive method.

women who completed the follow-up. There were 5320 (90.1%) Italian women, 583 immigrants of whom 347 were from Europe (118 from Romania and 108 from Albania, with overall 91% from LDC), 93 from Asia (67 from China and 8 from Philippines, with overall 99% from LDC), 79 from Africa (47 from Morocco, with overall 100% from LDC) and 64 from Centre-South America, the so-called Latin America (15 from Brazil and 11 from Ecuador, with overall 95% from LDC). *Table 1* shows the socio-demographic characteristics of the sample. Italian women were significantly older and more likely to be employed than immigrant women of any geographical area of origin. The other characteristics were differently distributed by geographic area. The percentages of women who reported to have received information on contraceptive methods during pre and post natal care, 59.1% of Italians and 62.7% of immigrants, were not statistically significantly different. Among African women the percentage was lower, 47.6%.

Information on contraceptive use was missing for 104 Italian women and 28 immigrant women.

*Table 2* shows the prevalence of contraception use by the geographic area of origin of the interviewed women and a description of the method they used. About 73%, both Italians and immigrants, reported they were using contraception since resumption of sexual activity. Comparing different geographic area of origin, the use of contraception varied significantly ( $p = 0.034$ ) ranging from 66.7% among women from Eastern Europe to 87.2% among Asian women.

The recourse to an effective method was similar among Italians and immigrant women, about 65.0% ( $p=0.990$ ). The percentages vary according to country

of origin, being lower (59.5%) among Eastern European women and higher among Asian (75.1%) and South American (73.4%) women ( $p = 0.041$ ).

The type of the contraceptives used by Italian and immigrant women is similar. The most commonly used methods are barrier methods: Italians: 45.2%, immigrants: 47.2%, followed by hormonal methods, Italians: 28.5%, immigrants: 25.2%, then the LAM, Italians: 13.2%, immigrants: 14.6%. About 9% of Italian and immigrant women use a natural method or withdrawal.

Given the detail about the type of contraception used by area of origin and the small numbers derived from it, we preferred to omit the percentages in this part of the *Table*.

However, the barrier methods are cited more frequently by Asian women ( $n = 38$ , 58.1%), Latin American ( $n = 22$ , 60.4%) and from African women ( $n = 27$ , 53.4%) and less frequently by women of Eastern Europe ( $n = 85$ , 37.5%). The hormonal methods, on the contrary, are cited less frequently by Asian women ( $n = 15$ , 21.7%) and Latin American ( $n = 14$ , 22.9%) and more frequently by women from Eastern Europe ( $n = 59$ , 27.0%) and from African women ( $n = 16$ , 27.1%).

*Table 3* presents the results of two logistic regression models related to the use of an effective contraceptive method (pill, barrier methods, IUD, sterilization, LAM), for Italian and immigrant women respectively. Those who have received family planning counselling were significantly more likely to use an effective method compared with women who had not: Italian women OR = 2.55, 95% CI 2.06 - 3.14; immigrant women: OR = 4.01, 95% CI 2.40 - 6.70. Among Italians, parity and marital status were also significantly associated with using

**Table 3**

Adjusted\* ORs of using an effective contraceptive method vs others/none by citizenship

| Characteristic                     | IT                                       |         |             | IM                                       |         |             |
|------------------------------------|--|---------|-------------|--|---------|-------------|
|                                    | Effective contraceptive use (weighted %) | Adj. OR | 95% CI      | Effective contraceptive use (weighted %) | Adj. OR | 95% CI      |
| <b>Age</b>                         |  |         |             |  |         |             |
| < 30                               | 65.4                                     | 1       |             | 65.6                                     | 1       |             |
| 30-34                              | 66.2                                     | 0.95    | 0.80 - 1.14 | 65.2                                     | 0.97    | 0.70 - 1.34 |
| > 34                               | 63.6                                     | 0.83    | 0.67 - 1.02 | 62.5                                     | 0.69    | 0.39 - 1.20 |
| <b>Parity</b>                      |  |         |             |  |         |             |
| primiparous                        | 64.2                                     | 1       |             | 69.3                                     | 1       |             |
| multiparous                        | 65.9                                     | 1.34    | 1.18 - 1.53 | 59.6                                     | 0.65    | 0.41 - 1.01 |
| <b>Marital status</b>              |  |         |             |  |         |             |
| married                            | 63.8                                     | 1       |             | 62.6                                     | 1       |             |
| unmarried                          | 69.1                                     | 1.28    | 1.07 - 1.54 | 70.6                                     | 0.98    | 0.61 - 1.58 |
| <b>Education</b>                   |  |         |             |  |         |             |
| low ( $\leq$ 8 yr)                 | 61.6                                     | 1       |             | 67.1                                     | 1       |             |
| high ( $>$ 8 yr)                   | 66.2                                     | 1.12    | 0.89 - 1.41 | 63.1                                     | 1.08    | 0.78 - 1.51 |
| <b>Employment</b>                  |  |         |             |  |         |             |
| no                                 | 62.1                                     | 1       |             | 61.2                                     | 1       |             |
| yes                                | 66.2                                     | 1.14    | 0.92 - 1.40 | 68.8                                     | 1.23    | 0.72 - 2.11 |
| <b>Family planning counselling</b> |  |         |             |  |         |             |
| no                                 | 52.8                                     | 1       |             | 45.7                                     | 1       |             |
| yes                                | 73.3                                     | 2.55    | 2.06 - 3.14 | 75.8                                     | 4.01    | 2.40 - 6.70 |
| <b>Geographic area of origin</b>   |  |         |             |  |         |             |
| East Europe                        |  |         |             | 59.5                                     | 1       |             |
| Asia                               |  |         |             | 75.2                                     | 2.29    | 1.29 - 4.06 |
| Africa                             |  |         |             | 62.4                                     | 1.50    | 1.08 - 2.08 |
| Latin America                      |  |         |             | 73.4                                     | 2.09    | 1.01 - 4.31 |

IT: Italians; IM: Immigrants.

\* Odds ratios adjusted for the effects of all variables in the table.

an effective contraceptive method: *multiparous* OR = 1.34, 95% CI 1.18 - 1.53; *unmarried* OR = 1.28, 95% CI 1.07 - 1.54. Whereas the older the woman, the lower is the likelihood of using effective contraception: women aged  $>$  34 years OR = 0.83, 95% CI 0.67 - 1.02. Although the results were not statistically significant, immigrants showed a similar pattern to Italians, except for parity. In fact, differently from Italian women, multiparous immigrants were less likely to use an effective contraceptive method (OR = 0.65, 95% CI 0.41 - 1.01). No significant effect was found for the other factors with the exception of counselling on family planning and the geographic area of origin. Compared with women from Eastern Europe, Asian women (OR = 2.29, 95% CI 1.29 - 4.06), African women (OR = 1.50, 95% CI 1.08 - 2.08) and Latin American women (OR = 2.09, 95% CI 1.01 - 4.31) were more likely to use effective contraceptives. No significant interactions were found between the independent variables and family planning counselling.

## DISCUSSION

The results of this study show that a high proportion of women intend to use contraception at 3 months postpartum (about 73%) but, if we consider women who choose an effective method, the prevalence drops to 65% (corresponding to the 89% of women who choose to use a method of any type). Italian and immigrant women show the same proportions of use of any contraception as well as of effective contraception. Comparing these results with those of a previous study [13] that reported a few days after childbirth the "intention" to use contraception when resuming sexual activity (76% of Italian and 69% of immigrant women), the differences are not very important and this would suggest that attitudes toward contraception soon after delivery are confirmed in practice. The similar multicentre survey conducted on pre- and intra-natal care more than 10 years ago in Italy [12], reported (without distinction of citizenship) that 62% intended to use contraceptives when resuming sexual activity in postpartum thus indicating a progressive increase in contraceptive use dur-



ing the last decade. A change in the pattern of the contraceptive methods is also noted. While in our study the contraceptive methods most often cited are barrier (45-47%) and only 25-28% of women reported hormonal methods, in the study above mentioned on the intention to use, 35% of women cited barrier methods and 44% hormonal methods. This change may be due to the fact that "intention to use" is an information not influenced by considerations related to the care and feeding of the child. But when it comes to the use of a method 3 months postpartum, such considerations may result in a greater propensity of the women to let the partner to assume responsibility for the control of fertility.

Cultural attitudes toward pregnancy and family planning, acceptability of contraception and method preferences vary across world regions [20]. A limit of this study is the small number of immigrants which is insufficient to investigate appropriately the separate areas of origin.

However, it would seem that the women from Eastern Europe are less likely to use a contraceptive method, in particular an effective contraceptive method, compared with Italians and with women from the other areas. They are also those who are less knowledgeable and are afraid of contraception methods, as found previously [13]. The lower use of contraception for women from Eastern Europe also emerged from the European study of infertility and of subfecundity [2] which compared the use of contraceptives in 5 European countries, including an Eastern European country, Poland. The authors discussed the process of transition to modern contraception and showed the different stages in which the surveyed countries were found; Poland was in a less advanced phase of this process as probably were the other Eastern European countries. Thus it seems that the difference persists. In particular, the pattern of contraception use in Romania was affected by the anti abortion law that was abolished in 1989. Until then contraception was considered illegal and only in mid-90s family planning services started to be available for Romanian women. In 2006, use of modern contraceptive was 61.1% [21]. In 2009, in Albania there were still many obstacles to the use of modern contraception due to attitude and knowledge related to contraceptives, socio-cultural factors and lack of contraception counselling from health care providers [22].

Asian women are more aware, more knowledgeable and the most likely to use contraceptives. Given that the majority come from China, this could be due to their having consulted Chinese health professionals who offer an unofficial health care service within their own community. Furthermore they will know of the birth control policies practiced in China since the 1970s. This policy, in fact, had resulted in a high long-term contraceptive use (around 80%), since the 1980s [23].

Also immigrant women from Latin America have a high use of barrier methods, coherently with the situation in their countries of origin. In fact the contraceptive prevalence rate in South America rose from 60% to 76% during 1990-2009 [24].

These results seem inconsistent if they are compared with national data on voluntary abortion by citizenship

[3]. The voluntary abortion rates are estimated to be higher for women from Asian and Latin American countries (e.g. Peru: 51.3 and China: 37.1 per 1000 per year among women aged 15-44 years) than for women from Eastern Europe and African countries (e.g. Albania: 24.7 and Morocco: 22.3 per 1000 women aged 15-44 years per year respectively). Although these indicators are estimated for different groups of women selected with different criteria, they suggest the possible existence of critical aspects of continuity and correct use of contraceptive methods. Asian and Latin American couples in Italy tend to use hormonal methods less frequently. Rather, they use more frequently coitus-dependent methods (mainly condoms) that imply a responsibility for their proper use at each act of sexual intercourse. This interpretation seems to be in line with the finding [13] regarding the question of whether delivering women expected their pregnancy. Women who stated that the pregnancy was unexpected because they were using contraceptives at the moment of conception, were 22.0% of Latin American women, 5.2% of Asians and 3.1% of Italians. Moreover, in South America there are still many unwanted pregnancies which often end in abortions (more than 4 million annually), despite the high overall prevalence of contraceptive use. This may be due to ineffective use of contraceptives and a lack of the women's control over their fertility and sexuality [25].

This study shows how among Italian women, those who receive counselling on contraception are two and a half times more likely to use effective contraception in postpartum. Among immigrant women, those who receive counselling are 4 times more likely to use it. Nevertheless, the overall proportion of women exposed to counselling on contraception during the pre and post-natal period is relatively low, about 60%, and it is lower (47.6%) for African women. Thus, contraceptive counselling is not yet provided as a standard by natal care services or by health professionals. The Cochrane review, updated to 2012 [7], on the effectiveness of educational interventions in the use of contraceptives by postpartum women, showed how half of these interventions led to fewer unplanned pregnancies or more contraceptive use. Although the overall quality of the evidence was moderate, the programs involving multiple contacts were promising. Contraceptive counselling should be considered a standard component of pre and postpartum care and it has been confirmed that not discussing it with all women in pre and postnatal period is to be considered a missed opportunity to empower women [5-6]. Even more considering how it is cost-effective and efficient because it doesn't require significant increases in staff, supervision or infrastructure [8].

The different pattern of use of contraceptive methods among immigrants from different areas may imply that specific programs of information on methods of fertility control should be tailored to improve adherence to the use of contraception.

In addition to the limit of the low immigrant sample size, there are some other limitations which might affect this study. First of all, the main outcome, the use of contraception, is sensitive information which is self-reported and not objectively measured and thus may be

affected by bias. We have tried to reduce the impact of this by training all the interviewers. Moreover, the question on contraceptive counselling was not specific for prenatal or postnatal care services, but referred to the entire period from pregnancy to three months postpartum and no information was collected on the methods nor on the specific content of the counselling. We found out that among women who reported to have received counselling compared to women who did not, the proportion of those who attended antenatal classes was higher. It is likely that many women received information on contraceptive methods during antenatal classes. The scientific literature distinguishes the effectiveness of prenatal counselling from postpartum counselling, the latter being most accredited; many authors recommend that frequent discussions of appropriate postpartum contraceptive options should take place throughout pregnancy and postpartum and that intervention with multiple sessions should be realized [26-29]. No information on the previous experience of contraceptive use has been collected. Therefore it cannot be excluded that some women may have confounded or reinforced the content of the counselling received during the actual pregnancy with the experience of previous contraceptive use. The effect of the counselling could be overestimated. Also, recall bias might affect the results. It is possible that women who chose to use contraceptives were also more likely to recall having received counselling. To the extent the recall bias is present, it might weaken the association found between use of effective contraception and counselling received.

A further limitation is the extensive geographical areas of the origin of immigrant women analysed, each comprising several countries which are culturally and economically completely different from each other, and for which the sample sizes are relatively small.

Another limitation of the study is that among the contraceptive methods explained in the questionnaire, the method "LAM" was not explicitly listed. We have constructed this category by assuming that: all women exclusively breastfeeding do so correctly according to the scientific criteria [19]. To verify the robustness of the association between the counselling and the use of effective contraceptives, we applied a logistic regression model on a sub-sample of Italian and immigrant women excluding those exclusively breastfeeding. The results reinforce certain associations and weaken others but the effect of receiving counselling is very similar:

Italians OR = 2.77 (95% CI: 2.31 - 3.33); immigrants OR = 4.58 (95% CI: 2.31 - 9.09).

Also we failed to obtain information on the date of resumption of sexual intercourse. In the absence of this information we cannot distinguish the "use" of contraceptives from "intention" to use. However, various studies have found that at three months after childbirth, the majority of couples, about 78-85%, had resumed sexual intercourse [30-32]. Finally, the sample is representative of the resident women who delivered in the 25 LHU covering about 10% of all births in Italy. Although the sample is not representative at national level, the surveyed women have socio-demographic characteristics similar to those of all women who delivered in Italy in the same period [33].

## CONCLUSIONS

Receiving counselling on contraception by natal care services is strongly associated with effective postpartum contraceptive use in both Italian and immigrant women.

The results of this study support the indication that health professionals should take every opportunity during pregnancy, childbirth and *puerperium* to provide women with information and counselling on contraception. More and better information should be given to improve women's knowledge and awareness and to help them to make informed choices on their reproductive life.

## Acknowledgments

The authors would like to express their gratitude to all women who participated in the surveys. We would like also to thank the working group on maternal care of the Local Health Units involved in the surveys for their support in the data collection.

The surveys were funded by a research grant from the Italian Ministry of Health/Centre for Disease Prevention and Control "Chapter 4393/2006-CCM". The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

## Conflict of interest statement

None to declare

Received on 11 October 2013.

Accepted on 9 December 2013.

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