

Original research article

Trends in the use of contraceptive methods and voluntary interruption of pregnancy in the Spanish population during 1997–2007[☆]

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Abstract

Background: This study was designed to acquire information about the use of contraceptive methods in order to reduce the number of elective abortions.

Study Design: Since 1997, representative samples of Spanish women of childbearing potential (15–49 years) have been surveyed by the Daphne Team every 2 years to gather data of contraceptive methods used.

Results: During the study period, 1997 to 2007, the overall use of contraceptive methods increased from 49.1% to 79.9%. The most commonly used method was the condom (an increase from 21% to 38.8%), followed by the pill (an increase from 14.2% to 20.3%). Female sterilization and IUDs decreased slightly and were used by less than 5% of women in 2007. The elective abortion rate increased from 5.52 to 11.49 per 1000 women.

Conclusions: The factors responsible for the increased rate of elective abortion need further investigation.

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Keywords: Contraceptive use; Contraceptive methods; Contraceptive trends; Voluntary interruption of pregnancy

1. Introduction

Approved legislations related to the use of effective contraceptive methods adopted by some developed countries have been effective to decrease the number of voluntary terminations of pregnancy.

Since 1997, we have conducted biannual national surveys on the use of contraceptive methods by Spanish women between the ages of 15 and 49 years. Information on contraceptive practices for the period 1997–2003 and for

the year 1999 has been reported [1,2]. The important economic and social changes that Spain has undergone in the last decade, largely due to the immigration phenomenon, warrant a detailed analysis of changing trends in contraception and their potential relationship with the number of elective abortions over this time span. The objective of this study was to assess the changes in the use of contraceptive methods and elective abortion interruption from 1997 to 2007.

2. Materials and methods

During the period of April 1997 to April 2007, a biannual national survey was conducted among Spanish women of childbearing potential (15–49 years) relative to their

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Table 1
Sociodemographic data for the years 1997 and 2007

	Variables	1997	2007	Increase (1997–2007)
Population	Total	39,852,650	45,200,737	13.4%
	Men	19,488,465	22,339,962	14.6%
	Women	20,364,186	22,860,775	12.3%
	Women aged 15–49 years	10,386,131	11,521,672	10.9%
Immigrant population	Total	637,085	4,519,554	7.09-fold
	Men	322,261	2,395,685	7.43-fold
	Women	314,824	2,123,869	6.74-fold
	Women aged 15–49 years	190,840	1,474,461	7.72-fold
Gross domestic product (GDP)	Million €	134,855	276,838	2.05-fold
	GDP nominal per capita (US\$)	13,066	32,066	2.45-fold
	Birth rate	9.38 per 1000 women of reproductive age (15–49 years)	10.5 per 1000 women of reproductive age (15–49 years)	1.2 per 1000 women of reproductive age (15–49 years)
Voluntary interruption pregnancy rate	5.52 per 1000 women of reproductive age (15–49 years)	11.49 per 1000 women of reproductive age (15–49 years)	2.08-fold	
Number of voluntary interruption pregnancies		49,578	112,138	

use of contraceptive methods. Participants were personally interviewed at home and completed a simple questionnaire, specifically designed for the purpose of the study.

2.1. Statistical design

For each of the study years, a probabilistic, stratified random sampling was performed to select potential study candidates. A two-stage conglomerate sampling was made, with subsampling and stratification of the first stage units which were the censal sections in which the country households are divided (each censal section includes a maximum of 2500 inhabitants living in the same geographical zone). Once those used for sampling had

been selected, all households existing in these sections were counted, and the list of households for the sample (eight per censal section) was drawn by simple random sampling, without replacement, from the total list of households. When several women of childbearing potential (15–49 years) were eligible to be surveyed, one of them was selected at random using a random number table. This sampling design ensured adequate geographical and sociodemographic representativeness of Spain as a whole and included over 200 municipalities from all Spanish provinces.

The variables used to stratify the sample to be selected were the following: age, marital status, geographical location, educational level and occupation.

Table 2
Characteristics of the sample surveyed according to stratification variables

Variable	1997 (n=2076)	2007 (n=2105)
Age, years		
15–19	246 (11.8)	210 (10.0)
20–24	287 (13.8)	263 (12.5)
25–29	325 (15.7)	339 (16.1)
30–34	380 (18.3)	349 (16.6)
35–39	324 (15.6)	335 (15.9)
40–44	245 (11.8)	319 (15.1)
45–49	269 (13.0)	290 (13.8)
Education level		
No studies or primary education	731 (35.2)	245 (11.6)
Secondary education	881 (42.4)	1353 (64.3)
University degree	464 (22.3)	507 (24.1)
Marital status		
Single, separated, divorced	733 (35.3)	1158 (55.0)
Married, living with a partner	1343 (64.7)	947 (45.0)
Occupation		
Student	346 (16.7)	255 (12.1)
Work at home (housewife)	1015 (48.9)	296 (14.1)
Employed (work outside)	715 (34.4)	1431 (73.8)

Percentages in parentheses.

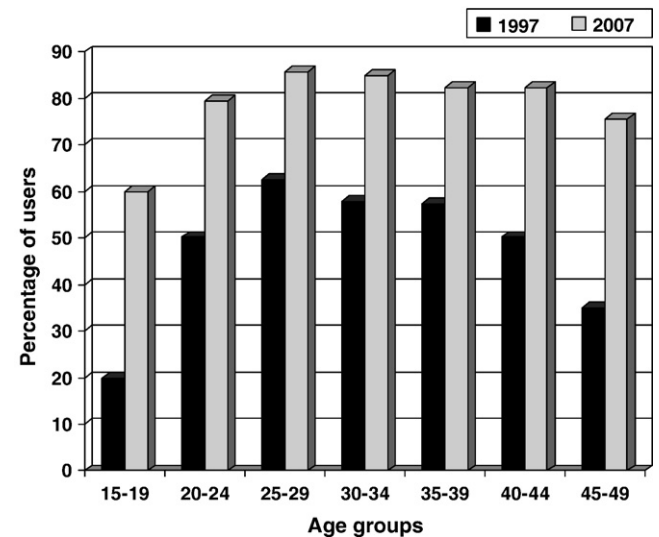


Fig. 1. Differences in the percentage of users of contraceptive methods between 1997 and 2007 according to age.

Table 3
Trends in the use of different contraceptive methods and reasons for not using contraceptive methods

Method used	1997 (n=2076)	2007 (n=2105)
Condom	436 (21.0)	818 (38.8)
Pill	296 (14.2)	428 (20.3)
Intrauterine device	118 (5.7)	96 (4.6)
Female sterilization	108 (5.2)	86 (4.1)
Coitus interruptus	31 (1.5)	52 (2.5)
Natural (rhythm)	18 (0.9)	10 (0.5)
Contraceptive diaphragm	6 (0.3)	11 (0.5)
Spermicidal cream	2 (0.09)	0
Other hormonal contraceptive methods (skin patch, vaginal ring)	0	76 (3.6)
Male sterilization ^a	0	90 (4.3)
Other	4 (0.2)	14 (0.7)
None	1057 (50.9)	424 (20.1)
Reasons for not using any contraceptive method		
Forbidden by my religious beliefs	28 (2.6)	8 (1.9)
I feel bad with all methods	85 (8.0)	11 (2.6)
I do not have sex	444 (42.0)	213 (50.2)
I cannot get pregnant	253 (23.9)	39 (9.2)
I do not care if I become pregnant	111 (10.5)	79 (18.6)
Lack of information	24 (2.3)	5 (1.2)
Other reasons	112 (10.6)	69 (16.3)

Percentages in parentheses.

^a This method was not assessed in the 1997 survey.

2.2. Methods for collecting information

Collection of information was controlled at all times in order to prevent potential errors occurring during field work. For this purpose, the following measures were taken: (a) use of a team of highly qualified interviewers, all of whom were women; (b) design of an easy-to-use questionnaire; (c) preparation of an instructional manual for interviewers; (d) performance of a pretest (pilot survey) of 60 surveys by 10 interviewers to assess the potential deficiencies of the

questionnaire; and (e) random analysis of 14% of the questionnaires received.

Presentation of the results includes two different types of parameters: (1) number of surveys corresponding to the number of women interviewed, and (2) number of responses corresponding to the number of answers given by the women surveyed to a given question. Responses were usually multiple.

The basic limitation of this type of sampling is whether all relevant strata or segments are adequately represented in the investigated sample. In our case, after following the above procedure, the sample of 2076 women selected for 1997 and the sample of 2105 women selected for 2007 were representative at a national level, and such representativeness refers to the results of the research in the specified study period.

Information regarding demographics, economic data and the rates of voluntary termination of pregnancy in Spain for the years 1997 and 2007 was obtained from public governmental sources, such as the National Health Statistics [3] and the Ministry of Health and Consumption [4]. This information is detailed in Table 1.

3. Results

Distribution of the sample based on the stratification variables is shown in Table 2. In 1997, 49.1% of women of childbearing potential (15–49 years) used some type of contraceptive method, whereas in 2007, the percentage of women of childbearing potential (15–49 years) using contraceptive methods increased to 79.9%. Although this increase was noted in all age groups, the greatest change was observed in the youngest age stratum (15–19 years) (an increase from 19.9% to 60%) (Fig. 1).

As shown in Table 3, the condom was the method most commonly used both in 1997 (21%) and in 2007 (38.9%)

Table 4
Use of the different contraceptive methods according to age

Contraceptive method	15–19 years				20–24 years				25–29 years			
	1997		2007		1997		2007		1997		2007	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Natural (rhythm)	0	0.00	0	0.00	1	0.35	0	0.00	1	0.31	0	0.00
Coitus interruptus	1	0.41	3	1.40	0	0	3	1.14	4	1.23	11	3.24
Spermicidal cream	0	0.00	0	0.00	0	0	0	0.00	0	0.00	0	0.00
Diaphragm	0	0.00	0	0.00	0	0	0	0.00	0	0.00	0	0.00
IUD	0	0.00	0	0.00	4	1.39	2	0.76	14	4.30	12	3.54
Condom	35	14.23	89	42.40	76	26.48	122	46.38	99	30.46	140	41.31
Pill	13	5.28	25	11.90	61	21.25	63	23.96	82	25.23	108	31.87
Other hormonal methods	0	0.00	8	3.80	0	0	16	6.08	0	0.00	13	3.83
Female sterilization	0	0.00	0	0.00	1	0.35	0	0.00	1	0.31	1	0.29
Male sterilization ^a			0	0.00				0.00			3	0.88
Other	0	0.00	1	0.50	1	0.35	3	1.14	2	0.62	3	0.88
None	197	80.08	84	40.00	143	49.83	54	20.54	122	37.54	48	14.16
Total	246	100.00	210	100.00	287	100	263	100.00	325	100.00	339	100.00

^a This method was not assessed in the 1997 survey.

followed by the pill (14.3% and 20.3%, respectively). In 2007, 23.9% of women used hormonal contraception, including the pill, the skin patch and the vaginal ring. In 1997, 1057 (50.9%) women did not use any contraceptive method, whereas in 2007, only 424 (20.1%) did not use any contraceptive method, with absence of sexual relationships being the most frequent reason cited for the lack of contraceptive protection in both surveys (Table 3).

The use of the different contraceptive methods according to age is shown in Table 4. The increase in the use of condoms was remarkable in both women between the ages of 15 and 19 years and between 45 and 49 years. In relation to education level, the increase in the use of contraceptive methods was homogeneously distributed in all groups (Table 5).

4. Discussion

The Spanish population experienced an increase of 13.4% over the study period 1997–2007. The largest increase was due to the number of immigrants, which in the case of immigrant women of childbearing potential rose from 190,840 to 1,474,461, respectively [3]. During that period, a twofold increase in the gross domestic product (GDP) and GDP nominal per capita was observed [3]. The birth rate also showed an increase of 1.2 per 1000 women of reproductive age (15–49 years) in 2007. The rate of elective abortion also increased during the study period from 5.52 (49,578 cases) to 11.49 per 1000 (112,138 cases) women of reproductive age, respectively [4].

It is interesting and paradoxical that the large increase in elective abortions was associated with (a) a remarkable increase in the number of women who used contraceptive methods (30%) and (b) improvements in the education level during both the study periods. Because the percentage of users of ineffective contraceptive methods, such as with-

drawal and spermicidal creams, was similar in 1997 compared to 2007 (2.8% and 2.9%, respectively), it cannot be accounted for the increased rate of elective abortions. The total number of women of childbearing age not using any contraceptive method decreased from a total of 2,056,454 (17.3%) in 1997 to 1,280,058 (8.2%) in 2007. Therefore, during the study period, we observed a 37.7% reduction in the number of women at risk of unintended pregnancy and a twofold increase in the number of elective abortions.

There is an urgent need to assess the level of compliance with effective contraceptive methods, particularly the condom and the pill, as well as the contraceptive habits of immigrant women, in order to determine the factors responsible for the increase in elective abortions and also to develop effective national preventive abortion campaigns. In our country, like in others [5–7], religion is one of the reasons against the use of contraceptive methods, although some have not found any difference in the use of contraceptive methods between young people who declared to be Catholic and those who defined themselves as non-religious. There appears to be a need to study more extensively the role played by different religions in the individual decisions regarding contraception.

In the present study, the condom was the most common contraceptive method and increased from 21% in 1997 to 38.9% in 2007. It would appear that this increase may be partially related to two important national campaigns promoting condom use during that decade. Other Eastern European countries with a high use of condoms, such as Ukraine, also have a high percentage of elective abortions [8].

The use of the pill increased from 14.25% to 20.3%. Other hormonal contraceptive methods, such as the skin patch and the vaginal ring, which were not available in 1997, accounted for 3.6% of users in 2007. Despite this increase in the use of hormonal contraception, our findings compared unfavorably with those reported in previous multinational surveys of contraceptive use across different European

30–34 years		35–39 years				40–44 years				45–49 years				Total					
1997		2007		1997		2007		1997		2007		1997		2007		1997		2007	
No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
4	1.05	1	0.29	2	0.62	2	0.60	5	2.04	2	0.63	5	1.86	5	1.72	18	0.87	10	0.48
5	1.32	9	2.58	6	1.85	14	4.18	7	2.86	5	1.57	8	2.97	7	2.41	31	1.49	52	2.47
0	0.00	0	0.00	1	0.31	0	0.00	1	0.41	0	0.00	0	0.00	0	0.00	2	0.09	0	0.00
1	0.26	1	0.29	1	0.31	1	0.30	3	1.22	6	1.88	1	0.37	3	1.03	6	0.29	11	0.52
28	7.37	11	3.15	35	10.80	19	5.67	18	7.35	25	7.84	19	7.06	27	9.32	118	5.68	96	4.56
82	21.58	146	38.97	75	23.15	126	37.61	47	19.18	118	36.99	22	8.18	87	30.01	436	21.01	818	38.86
85	22.37	99	28.36	36	11.11	64	19.10	12	4.90	54	16.93	7	2.60	15	5.17	296	14.26	428	20.33
0	0.00	18	5.16	0	0.00	15	4.48	0	0.00	5	1.56	0	0.00	1	0.34	0	0.00	76	3.61
14	3.68	8	2.29	30	9.26	14	4.18	30	12.24	22	6.90	32	11.90	41	14.13	108	5.20	86	4.09
		12	3.44			18	5.37			24	7.52			33	11.39			90	4.28
1	0.26	2	0.57	0	0.00	3	0.90	0	0.00	2	0.63	0	0.00	0	0.00	4	0.19	14	0.66
160	42.11	42	14.90	138	42.59	59	17.61	122	49.80	56	17.55	175	65.06	71	24.48	1057	50.92	424	20.14
380	100.00	349	100.00	324	100.00	335	100.00	245	100.00	319	100.00	269	100.00	290	100.00	2076	100.00	2105	100.00

Table 5
Use of contraceptive methods according to education level

Contraceptive method	No studies or primary education				Secondary education				University degree				Total			
	1997		2007		1997		2007		1997		2007		1997		2007	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Natural (rhythm)	8	1.09	1	0.41	8	0.91	5	0.37	2	0.43	4	0.79	18	0.87	10	0.47
Coitus interruptus	19	2.60	5	2.00	9	1.02	35	2.59	3	0.65	12	2.37	31	1.49	52	2.47
Spermicidal cream	1	0.14	0	0.00	0	0.00	0	0.00	1	0.22	0	0.00	2	0.10	0	0.00
Diaphragm	1	0.14	1	0.41	2	0.23	5	0.37	3	0.65	5	0.98	6	0.29	11	0.52
IUD	34	4.65	10	4.10	51	5.79	59	4.36	33	7.11	27	5.32	118	5.68	96	4.56
Condom	142	19.43	81	33.12	180	20.43	511	37.77	114	24.57	226	44.57	436	21.00	818	38.86
Pill	82	11.22	44	17.96	129	14.64	272	20.10	85	18.32	112	22.10	296	14.26	428	20.33
Other hormonal methods	0	0.00	5	2.00	0	0.00	56	4.14	0	0.00	15	2.96	0	0.00	76	3.61
Female sterilization	52	7.10	29	11.83	42	4.77	49	3.62	14	3.02	8	1.58	108	5.20	86	4.09
Male sterilization ^a			12	4.90			68	5.02			10	1.97			90	4.28
Other	1	0.14	0	0.00	1	0.11	2	0.15	2	0.43	12	2.37	4	0.19	14	0.67
None	391	53.49	57	23.27	459	52.10	291	21.51	207	44.60	76	14.99	1057	50.92	424	20.14
Total	731	100.00	245	100.00	881	100.00	1353	100.00	464	100.00	507	100.00	2076	100.00	2105	100.00

^a This method was not assessed in the 1997 survey.

countries. In these surveys, oral contraceptives remain a popular method of contraception, with usage rates between 28% and 30% [9,10]. It appears that Spain, together with Greece, Russia and the Baltic States, had the lowest rates of use of hormonal contraception methods in Europe.

We also observed a twofold increase in the use of coitus interruptus (1.5% in 1997 and 2.5% in 2007), although a substantial decrease in the use of natural methods was found. The percentage of users of the remaining contraceptive methods, such as IUDs and female sterilization, also decreased.

The increasing trend in the use of contraceptive methods, particularly in the youngest age group, is consistent with other studies [8–10]. Demographic and health survey data from more than 40 countries examined contraception patterns in 15- to 19-year-old women and showed that the prevalence of contraceptive use among adolescents increased substantially over the last two decades and was faster than among older women [11]. Moreover, greater proportions of adolescents than of older women discontinued using a contraceptive method within a year or experienced contraceptive failure. There are various reasons to explain the increased use of contraceptive methods in Spain, including greater availability of information especially due to nationwide contraception campaigns; expansion of the contraceptive market with new products and routes of administration; greater access to contraceptive supplies, services, family planning programs and providers; and higher awareness of sexually transmitted infections and HIV.

The findings of this study show an increase in the contraceptive use and utilization of abortion. There are several reasons for this apparent disparity. One is the increase in notifications to the register, thanks to the improvement in its coverage and to the transformation of clandestine abortions and abortions performed abroad into recorded ones. Another is the change in juveniles' sexual behavior patterns. Youngsters declare engaging in coital sex more

frequently and more precociously and not always doing it in safe conditions from the perspective of both unwanted pregnancies and sexually transmitted diseases. Gender inequalities in what concerns sexual and reproductive health, especially in lower socioeconomic layers, seem to be present. Girls are still experiencing pressure to engage in precocious and coital sex, present limited capacity to negotiate use of condoms or withdrawal, and must assume responsibility for and possible consequences of emergency contraception and sometimes elective abortion. On the other hand, availability of emergency contraception could help reduce the adhesion of effective contraceptive methods or to consider the emergency contraceptive pill as an effective method to prevent pregnancy.

Inadequate or inconsistent use of contraceptive methods especially the condom and the pill (missed pills) may account for the increased utilization of abortion. Other studies have documented high failure rates for condom users. In the 2002 National Survey of Family Growth, which collected characteristics, pregnancies and contraceptive use from a nationally representative sample of US women, 12.4% of all episodes of contraceptive use ended in failure within 12 months after initiation of use (9% for oral contraceptives, 17% for condom, 18% for withdrawal) [12]. In the Russia Longitudinal Monitoring Survey [13], the prevalence of barrier method use increased from 9% to 21% between 1994 and 2003. Interestingly, the availability of abortion was one of the reasons cited for nonuse of contraception. In a random sample of 1147 women aged 18–44 years who completed questionnaires at local women's clinics in St. Petersburg in 2003–2004 [14], among those at risk of unintended pregnancy, six in 10 had used reliable contraceptives (the pill, intrauterine device or condoms) at last intercourse; 42% had used condoms. More than half of those surveyed reported having had an abortion. Characteristics associated with increased odds of having had an

abortion included being 25 or older, cohabiting, having high income, having experienced first intercourse before turning 18, the number of births and having used no contraceptive method at first sex [14].

Another reasons for the increased abortion rate during the 10-year study period may be the rising immigrant population, the greater fertility of young immigrant women and probably also the fact that the latter have a higher number of unplanned and unwanted pregnancies than Spanish women. In other studies, immigrant status seems to be an independent risk factor for induced abortion [15]. It has been argued that the most probable cause is that immigrant status is associated more often with low education, weak social network, poverty, unemployment and being outside common pathways to health care [15]. In a case-control study that compared 1095 Danish-born women and 233 immigrant women requesting abortion with a control group of 1295 pregnant women intending to give birth, lack of contraceptive knowledge and experience with contraceptive problems were associated with the choice of abortion [16]. This association was most pronounced among immigrant women, in whom those lacking contraceptive knowledge had a sixfold increased odds ratio (OR) and those having experienced contraceptive problems had a fivefold increased OR for requesting abortion. Furthermore, in this group of women, a partner's negative attitude towards contraception was associated with an eightfold increased OR for requesting abortion [16]. In a descriptive study of immigrant and nonimmigrant women conducted in a health care district of Almeria (Spain), between 1998 and 2002, a greater risk of requesting elective abortion was found among immigrants as compared to native Spanish women [17]. In this respect, culturally sensitive information campaigns targeting the heterogeneous group of immigrant women are needed.

Our study had some limitations. Although women included in the two surveys carried out in 1997 and in 2007 are representative of the general population, the study sample was stratified according to previously defined variables, but women were not selected in relation to the proportion of the female population of each autonomous community in Spain. This prevents us from deriving conclusions about the use of contraceptive methods that can be applied locally to each autonomous community. The role of male sterilization cannot be assessed because in the 1997 survey this contraceptive method was not assessed.

In summary, there was an increasing trend in the use of effective contraceptive methods and a large reduction in the number of women of childbearing age at risk of unintended pregnancy over the 10-year study period. The reasons for the increasing rate of elective abortion warrant further investigation.

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