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Patterns of contraceptive use before and after an abortion: results from a nationally representative survey of women undergoing an abortion in France

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Abstract

Background—Using a large national survey of women undergoing an abortion in France, we explore their contraceptive use surrounding an abortion.

Study design—The study comprised a representative sample of 7,541 women undergoing an abortion in 2007. We compared their use of contraception before and after the abortion and examined the factors associated with the prescription of a very effective method (IUD, hormonal methods) after the procedure.

Results—Sixty-six percent of women were using contraception in the month they conceived. A third of women reported the same use of contraception before and after the abortion, 54% were prescribed a more effective method while 14% changed to less effective or no method at all. After the abortion, 77% of women were prescribed a very effective contraceptive.

Conclusions—Abortion offers an opportunity to improve contraceptive uptake and a chance for providers to adjust their prescriptions according to the difficulties women experience in their use of contraceptives.

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Keywords

Contraception; Post abortion care; Contraceptive failure; France; Nationally representative survey

1. Introduction

In France, 82% of contraceptive users utilize very effective methods (pill or IUD), with failure rates lower than 3% in the first year of use among French women [1,2]. At the same time, unintended pregnancies remain frequent: one in three pregnancy is reported to be unintended, with 62% of these ending in an abortion [1,3]. The abortion rate in France (14.8 per 1000 women age 15 to 49 years) is among the highest in Western Europe [4]. In addition, while this rate has remained relatively stable since the mid-1980s for women above 25 years of age, recent data suggest a slight increase among younger women since the late 1990s [4]. Using the first large nationally representative sample of women undergoing an abortion in France in 2007, we explore the factors associated with women's use of contraception surrounding an abortion. We also seek to understand how clinicians adapt their post-abortion prescription of contraceptives according to women's use of contraception before the abortion.

2. Materials and methods

The data for this study are drawn from a nationally representative survey of 8,245 women aged 13 to 50 years old undergoing an elective abortion in Metropolitan France in 2007. The survey was designed as a multi-thematic national study exploring the characteristics of women undergoing an abortion in France, their use of contraception at the time of conception, the patterns of access to health care services providing abortions, the therapeutic protocol and post-abortion contraceptive care (including the prescription of contraceptives). Therefore, the study of contraceptive use before and after the abortion was designed as a primary objective of the survey. The sample was selected using a multi-step procedure (Figure 1), which consisted of first selecting a probability sample of 242 public or private hospitals from the list of all hospitals (n=639) providing abortions in 2006. Hospitals were stratified by region and by caseload defined in three categories based on the 2006 hospital records (less than 250 abortions/year, 250 to 1,000 abortions/year and more than 1,000 abortions/year). A sample of hospitals was selected in each stratum. In order to facilitate data collection, we used different sampling fractions within the different strata to over-sample large hospitals: all facilities reporting 1,000 abortions or more (n=47) were included in the study while half of facilities reporting 250 to 1,000 abortions/year (n=121) and one in five of those reporting less than 250 abortions/year (n=90) were selected at random to participate in the study. The selected hospitals were asked to include all abortion providers (physicians and midwives) who performed abortions in their facility as well as the clinicians who were affiliated with the hospital in order to provide medical abortions in their private offices (surgical procedures can be performed only in hospitals in France). All health care providers selected in the survey were asked to include all the women they saw for an abortion during the study period of one month after explaining the aim of the study and obtaining their informed consent. In order to increase the sample size for specific research objectives, including the study of abortion care among minors and in private practices, younger women (under the age of 18), and women who had their abortion in a physician's private office were included during a study period of 2 months. Likewise, in order to pursue regional analysis, 6 regions extended their inclusion period to 2 months for all women, and Corsica (a small island in the south of France) included women during a 6 month study period.

Each woman was assigned a sampling weight that was inversely proportional to the probability of the facility being selected in the sample (according to its caseload) and to the duration of the study period (depending on women's age and geographical location). The facility-level weights were adjusted for the non-responding facilities according to their geographical location, caseload and public or private status. A further adjustment was introduced to reflect the characteristics of women undergoing an abortion in France (according to their age, the abortion technique and the type of facility) based on national abortion statistics provided by hospital records. All analyses are weighted to take the complex sampling design into account.

2.1. Study population

Among the 242 selected hospitals, 3 had stopped their abortion activity and 55 declined to participate (60% were in the private sector and 40% in the public sector). Half of the non-responding facilities had small caseloads (<250 abortions/ year), 40% performed 250 to 1000 abortions annually and 5% were large facilities. A total of 184 hospitals contributed 8,245 women's questionnaires: 7,799 were hospital-based abortions and 446 were performed in private offices. The 7,799 hospital-based abortions were carried out in 184 different hospitals for which it was estimated that a total of 11,781 abortions were completed during the study period. Thus an estimated 66% of the hospital-based abortions performed in 184 participating hospitals are represented in the dataset. From the initial sample of 8,245, we excluded women if they reported their pregnancy was intended (n=282) or if their pregnancy was terminated for medical reasons (n=184). We further excluded women for whom the use of contraception at the time of the abortion was unknown (n=238). Our final study population comprised 7,541 women.

2.2. Questionnaires

Information was collected at the time of the abortion (the day of the surgical procedure or the day they received mifepristone) in two parts. One medical questionnaire was completed by the health professional who performed the abortion providing medical information on the procedure, contraceptive counselling and prescriptions. A second questionnaire was handed to the women by the facility staff just after the abortion procedure, and was completed and returned in a sealed envelope before they left the hospital or the physician's private office. The 5-page questionnaire collected information on women's sociodemographic characteristics, the use of contraception at the time of conception, the reported reasons for contraceptive failure, contraceptive counselling and prescriptions. These two questionnaires were related by a common anonymous identifying number in order to link the medical and sociodemographic information for individual women.

2.3. Analysis

We first examined the factors associated with women's use of contraception at the time of conception. The level of non-response on most of the demographic characteristics was less than 3%. However, 18% of cases were missing information about income and previous live births and 20% about previous abortions. These last two items were available only from the medical questionnaire, which was not completed for 1,104 women in our study population. Missing values were imputed by fitting regression models using a multiple imputation process [5].

Women's use of contraception was assessed by asking them what was the last method they had used before becoming pregnant, if they had stopped the method in the month they conceived and for what reasons they thought they had become pregnant.

In the second part of the analysis, we compared women's use of contraception before the abortion to the method that was prescribed or recommended at the time of the procedure. We first compared women's and health professionals' responses about receiving or dispensing information about contraception and tested for differences in responses using a kappa test of correlation. We further compared women's and health care professionals' responses about post-abortion prescription of contraception, but in this second comparison, we were unable to compute a kappa test as the wording of questions differed: women were asked if they were prescribed a method of contraception while the physicians were asked if they had prescribed or recommended a method.

We explored the relationship between women's post-abortion contraceptive prescriptions and their use of contraception prior to the abortion, based on women's responses. We also examined the factors associated with the prescription of very effective methods (hormonal methods or the IUD) after the abortion. Women who became pregnant despite tubal ligation were excluded from the analysis of pre-abortion contraceptive use and its relationship with post-abortion contraceptive prescription because of insufficient sample size ($n=2$). These women were nonetheless included in the study of factors associated with post-abortion prescription of very effective methods. Variables with p -values below 0.25 in univariate analysis were included in the multivariate logistic regression model.

Analyses were conducted using Stata software version 10 SE. The study received the approval of the relevant French government oversight agency (the Commission Nationale de l'Informatique et des Libertés), which reviews all human subject research projects in France.

3. Results

The sociodemographic characteristics of the women are summarized in Table 1 (last column). A majority of abortions were performed in a public hospital (74.4%), 18% were practiced in a private hospital and 7.6% were performed in a physician's private office ($n=404$). Slightly more than half of the women underwent a medical abortion (53.1%,) and 46.9% had a surgical procedure.

Thirty-four percent of women reported not using contraception in the month they conceived (Table 1). Only 5.8% of these women had never used a method of contraception before the abortion. The lack of recognition of pregnancy risk (29%) and not planning to have sex (18%) were the two most cited reasons for not using contraception (Table 2).

Twenty-seven percent of women were using the pill in the month they conceived (Table 1). Incorrect or inconsistent use of the pill accounted for the majority of pill failures: 91.5% reported they had missed one or more pills; 4.4% cited illness or an interaction with other medications. Only 4.1% indicated they had become pregnant despite having used the pill perfectly. Sixteen percent of women relied on condoms in the month they conceived: 83.9% attributed the pregnancy to condom slippage or breakage while 16.1% had not used the condom during the act of intercourse that they identified as being the one which made them pregnant. Finally, 18.3% of women were using less effective methods (spermicides, withdrawal or fertility awareness methods), 1.7% experienced an IUD failure, 0.8% a failure while using the patch or the vaginal ring. Finally, two women reported becoming pregnant despite having had a tubal ligation.

Women's use of contraception at the time of conception varied by age, parity, cohabitation status, country of origin and social background (Table 1). In particular, women who were unemployed, women from Sub-Saharan Africa and those who were aged 40 years or older were more likely not to be using contraception. Condom failures were more frequent among adolescents, students, single women, and those with no children.

In all, 79.6% of women declared they had received information about contraception in the process of the abortion. We found little correlation between women's responses and their health care provider's response regarding this issue, with a kappa correlation of 0.07. Thus, among women for whom the information was available from both the medical and the women's questionnaires ($n=5,505$), 0.8% of health care professionals indicated they had not informed the woman about contraception, whereas 18.5% of women stated they had not received information about contraception. These women were more likely than others not to have been using contraception at the time of conception (38.4% *versus* 33.7% for other women, $p=0.02$).

Half of the women (50.3%) reported receiving a prescription for oral contraceptives, 16.7% for an IUD, and 9.7% for other hormonal methods (7.1% the implant, 1.2% the patch and 1.4% the vaginal ring). In some cases, women may have been provided with supplies of oral contraception or the IUD or implant may have been inserted at the time of the procedure, but this information was not provided in the questionnaire. Twenty-three percent of women reported having received no prescription for contraception. Among the 1,084 women who reported no post-abortion contraceptive prescription, and for whose procedure the medical questionnaire was completed, the health care provider indicated he or she had recommended or prescribed the pill in 67% of cases, the IUD in 11.3% of cases, the implant in 6.1% of cases, condoms alone in 2.8% of cases, EC in 1.1% of cases, sterilization for 0.7% of women and no contraception in 11% of cases.

Twenty-two percent of women were using a very effective method before the abortion and were prescribed a very effective method after the procedure (Table 3). Among these women, 42% indicated receiving a prescription for a method different from the one they were using before the abortion. Seven percent of women were using a very effective method at the time of conception and received no prescription after the abortion. In 54.0% of cases, women had not used contraception (25.9%) or experienced a failure using a less effective method (28.1%) and were prescribed a very effective method after the abortion. Finally, 16.0% of women were not using contraception (8.5%) or using a less effective method (7.5%) at the time of conception and reported receiving no prescription after the procedure. Overall, half of the women indicated receiving a prescription for the pill, and 24% for a long-acting method (implants, IUD). One woman in five reported no change between the use of contraception before the abortion and the prescription they received after the procedure,

Women under the age of 20 years and those who had their abortion in a physician's private office were twice as likely to receive a prescription for a very effective method (Table 4). Conversely, women who were single were less likely to receive a prescription for a very effective method. These results were unchanged after controlling for women's use of contraception prior to the abortion, which had no effect on the post-abortion prescription of very effective methods ($p=0.28$, results not shown).

4. Discussion

Our results show that a majority of abortions in France follow contraceptive failures. The lack of perception of pregnancy risk was the most often cited reason for not using contraception, while inconsistent or incorrect method use accounted for the majority of contraceptive failures, reflecting the difficulties women experience with their daily use of contraceptives. [6] Abortion was associated with a clear increase in the prescription of very effective methods. Our results also suggest a desire on the part of providers and women to adapt the post-abortion prescription to the circumstances leading to the abortion as a significant proportion of contraceptive users (73%) were offered a different contraceptive option than the one they had before the abortion. Three women in 4 received a prescription

for a very effective method. This proportion was even greater among women seen by physicians in private offices, an encouraging finding given the recent policy change allowing medication abortions to be performed outside of hospital facilities in France.

This study is one of the few to explore peri-abortion contraception among a large nationally representative sample of women undergoing an abortion. The recruitment of women at the abortion facilities is likely to limit some of the methodological discrepancies inherent in all population-based surveys: substantial underreporting of abortions [7–9], possible recall bias, and insufficient sample size to identify possible variations along socioeconomic and demographic groups. The level of non-response was estimated to be around 34% among the women obtaining abortions in the 184 participating hospitals, which was lower than the 50% of abortion underreporting reported in population-based surveys exploring this topic in France and the United States [8,9]. Private hospitals were more likely to refuse to participate in the study than public institutions; we adjusted for non-participation in the facility-level weights. A substantial proportion of the non-response is also likely due to the non-participation of health professionals rather than to the refusal of women to participate, as 40% of health professionals did not respond to the initial questionnaire they were asked to fill in at the beginning of the study.

Expanding on existing research, our study explores the adaptation of post-abortion contraceptive prescriptions according to the use of contraception prior to the abortion. We acknowledge the limits of studying post-abortion prescription of contraceptives rather than actual use of contraception as some women may not use the method they were prescribed.

The initial protocol of this study included a follow-up interview one month after the abortion assessing women's post-abortion contraceptive practices. Only 25% of women completed the follow-up questionnaire, which rendered this study unfeasible. However, we believe that one way of explaining women's post-abortion contraceptive behaviors is to explore what prescription they received after the procedure, which is the focus of this study.

The proportion of women who reported becoming pregnant while using a method of contraception is lower (65.7%, 95%CI: 64.3%–67.1%), although not statistically different, from the 74.8% (95%CI: 65.1%–82.5%) reported in a preliminary study of 163 women who had an abortion in France between 1996 and 2000, identified in a population-based study on contraceptive practices in France [10]. Compared to women seeking an abortion in the United States or Denmark, women who obtained an abortion in France were more likely to report that the abortion followed a contraceptive failure (66% *versus* 54% and 46%, respectively) [10,11]. They were more likely to be pill-users (27% *versus* 14% in the United States and 15% in Denmark) and, conversely, less likely to be condom users (16% *versus* 28% in the United States and 25% in Denmark) in the month the pregnancy started [11,12]. Such variations reflect the differences in contraceptive practices between countries. For instance, less than 3% of women potentially at risk of an unintended pregnancy use no contraception in France [1] *versus* 11% of women in the United States [1,13]. The proportion of pill users in France in reproductive age women is twice as high as it is in the United States (60% *versus* 27%) [1,13].

As found in the United States, Switzerland and the United Kingdom [11,14,15], abortion was associated with an increase in the prescription of very effective methods. However, a significant proportion of women reported receiving no counseling while their health care provider indicated he/she had provided the woman with information about contraception. We can only speculate about the reasons for such differences, which may reflect a failure on the part of health care providers to communicate about contraception or devote enough time to that matter. Abortion may also be a traumatic time for women who may not be ready to

undergo counseling. In any case, we strongly believe these discordances reflect the difficulty in providing effective contraceptive counseling at the time of an abortion, as shown in an intervention trial among women undergoing an abortion in Scotland [15]. These results should be brought to the attention of health care providers so they can reflect on new strategies to deliver information tailored to the specific needs of women in this context. The same differences in responses were found regarding post-abortion contraceptive prescription although because of the difference in the wording of questions, the discordances could also signal that the physician provided the woman with recommendations rather than a prescription. These women were probably expected to receive their contraceptive method at the follow-up visit two to three weeks after the abortion, although abortion clinical guidelines strongly recommend providing effective methods of contraception at the time of the procedure. Physicians may lack the time to discuss contraception at the time of the abortion or choose to hand over this responsibility to the woman's regular physician. Delaying the provision of contraception however, is likely to increase the risk of repeated unintended pregnancy, especially if women do not come back for the follow-up visit. Among the 25% of women who received a prescription for long acting methods at the time of abortion, it was not possible to identify those who had the IUD or the implant inserted at the time of the procedure from those who received a prescription but needed a follow-up visit to have their contraceptives inserted.

The present study shows that abortion care provides an opportunity to improve women's overall contraceptive uptake and possibly a chance for providers to adjust their prescriptions according to the difficulties women experience in their daily use of contraceptives.

Nonetheless, a significant proportion of women report receiving no post-abortion prescription for contraceptives, which emphasizes the difficulty in providing effective post-abortion contraceptive counseling. The recent development of community-based provision of medical abortion may be an important path towards improving post-abortion contraceptive counseling, in the context of a more personalized doctor-patient interaction. More research among abortion providers could shed new light on the barriers to providing effective contraceptive counseling and on how they decide to adapt their prescriptions in light of the contraceptive errors of use resulting in unintended pregnancies.

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Sampling Design & Study population

Figure 1.

Table 1
Sociodemographic factors associated with women's use of contraception at the time of conception

	No contraception n=2506	IUD n=132	Pill n=2031	Patch/ vaginal ring n=58	Condom n=1341	Other barrier or natural methods n=1372	Emergency contraception n=99	Total
Total	34.3	1.7	27.3	0.8	16.4	18.3	1.2	p ^a %
Age, years								
<20	33.4	0.4	20.6	0.5	31.3	12.1	1.7	<0.0001 15.9
20–29	35.2	0.9	32.4	1.0	13.2	16.0	1.3	47.6
30–39	32.1	3.1	25.5	0.8	14.4	23.0	1.1	30.4
40 and over	40.6	4.6	13.5	0.3	12.1	28.8	0	6.1
Living in a couple								
Yes	33.6	2.6	30.2	0.9	10.9	21.0	0.9	<0.0001 44.8
No	34.9	1.0	24.9	0.8	20.8	16.2	1.4	55.2
Children ever born								
No	35.2	0.3	23.9	1.0	21.5	16.4	1.6	0.0001 45.6
Yes	33.5	2.8	30.0	0.7	12.2	19.9	0.9	54.4
Previous abortion(s)								
Yes	32.7	2.0	30.7	0.8	13.1	19.5	1.3	0.19 38.4
No	35.3	1.4	25.2	0.9	18.6	17.6	1.2	61.6
Country of birth								
France	33.5	1.8	28.1	0.9	17.1	17.5	1.1	0.0001 85.1
Sub-saharan Africa	41.7	1.6	20.0	0	12.2	23.1	1.3	5.8
Northern Africa	33.1	1.0	31.5	0.8	9.5	22.0	2.1	3.3
Western Europe/North America/ Australia	34.9	1.5	22.4	0.2	16.0	23.0	2.0	1.8
other	40.2	0.7	19.0	1.4	11.7	25.7	1.4	4.0
Level of education								
<=High school graduation	35.6	2.1	31.3	0.7	12.6	16.7	1.0	<0.0001 54.6
> High school	31.9	1.9	23.3	1.3	16.3	24.0	1.3	25.2
still in school and < 2 years after high school	33.9	0.4	21.2	0.6	26.9	15.4	1.6	20.2

No contraception n=2506	IUD n=132	Pill n=2031	Patch/ vaginal ring n=58	Condom n=1341	Other barrier or natural methods n=1372	Emergency contraception n=99	Total
Income							

^aP values are the results of the multivariate polytomous regression model exploring the factors associated with pre-abortion use of contraception

Table 2Reasons women report for not using contraception in the month they conceived (n=2,260)^a

	%
Thought they could not get pregnant at that time	29.3
Had not planned to have sex	18.1
No regular partner	16.0
Cost	4.4
Did not think about using contraception	7.5
Thought was hypofertile	4.7
Partner's request not to use contraception	3.7
Partner wanted the pregnancy	3.3
Did not care about getting pregnant	4.7
Didn't want parents to know she was using contraception ^b	4.8

^a Analysis of reasons for not using contraception was performed among women who provided at least one reasons for not using contraception. They accounted for 92% of women who were not using contraception at the time of conception.

^b The reason "not wanting parents to know" was analyzed among the 460 women who were less than 20 years old and who provided at least one reason for not using contraception.

Table 3

Womens' contraceptive use before and after the abortion (n=7099)

Contraceptive use before the abortion	n	Prescription of contraception after the abortion, %						Total ^a
		No contraception n=1515	IUD n=1126	Implant n=561	Patch/ vaginal ring n=209	pill n=3656	condom/other barrier-natural methods n=32	
No contraception	2366	8.5	5.2	2.4	0.9	17.4	0.1	34.6
IUD	120	0.4	0.4	0	0	0.6	0	1.5
Patch-vaginal ring	57	0.4	0	0	0	0.2	0	0.9
Pill	1908	6.1	4.9	2.9	0.7	12.6	0	27.2
Condom Other barrier/ natural methods	1259	3.3	2.0	0.8	0.4	9.6	0.2	16.3
/EC	1389	4.1	4.1	0.9	0.4	9.9	0.1	19.6
Total ^b	7099	22.9	16.7	7.1	2.6	50.3	0.5	100

^a Distribution of women's contraceptive use at the time the pregnancy leading to the abortion started. Results are slightly different from Table 2 as they are restricted to women who also provide information about post-abortion contraceptive prescription.

^b Distribution of women's post-abortion contraceptive prescription.

Table 4

Factors associated with having been prescribed a very effective contraceptive (n=7093)

	% women who were prescribed a very effective method (IUD/ implant, OC)	p	Adjusted OR	CI 95%	p
Age		0.004	1		0.0005
<20	79.9				
20–24	73.0		0.6	0.5–0.8	
25–29	76.6		0.7	0.5–0.9	
30–34	80.9		0.8	0.6–1.2	
35–39	75.8		0.6	0.4–0.8	
40 and older	73.6		0.6	0.4–0.8	
Living in a couple					
Yes	78.7	0.01	1		0.04
No	75.0		0.8	0.7–1.0	
children ever born					
Yes	78.2	0.08	1		0.09
No	75.1		0.81	0.7–1.0	
Previous abortion(s)					
Yes	77.3	0.74			
No	76.5				
Country of birth					
France	76.4	0.92			
Sub-saharan Africa	78.2				
Northern Africa	77.1				
Western Europe/North America/ Australia	78.8				
Other	79.1				
Level of education					
<High school	77.6	0.53			
Professional training high school diploma	74.6				
Classic high school diploma	77.0				
2 years after high school	73.1				
>2 years after high school	77.2				

	% women who were prescribed a very effective method (IUD/ implant, OC)	p	Adjusted OR	CI 95%	p
Still in school and < 2 years after high school	77.4				
Income		0.91			
Less than 600 euros/month	76.5				
600 to 1199	75.6				
1200 to 2399	76.9				
2400 or higher	77.5				
Health insurance					
No insurance or government medical aid	77.0	0.89			
Social security	77.2				
Complimentary private insurance	76.4				
Professional situation		0.38			
Work	75.4				
Unemployed	77.6				
Student	77.4				
Housewife or other	79.0				
Abortion technique		0.95			
Medical	76.7				
Surgical	76.8				
Health care setting					
Public hospital	77.0	0.0004	1		0.0003
Private clinic	70.8		0.7	0.6–0.9	
Physician's private office	87.1		2.1	1.3–3.2	