



Original research article

Reported contraceptive use in the month of becoming pregnant among U.S. abortion patients in 2000 and 2014



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ABSTRACT

Objectives: The objective was to determine whether types of contraceptive methods used by abortion patients in the month they became pregnant changed between 2000 and 2014.

Study design: We used secondary data from the 2000 ($n=10,015$) and 2014 (8177) Abortion Patient Surveys. Patients were asked which contraceptive methods they had last used and when they had stopped or if they were still using them. The main outcome variable was type of contraceptive method used in the month the pregnancy began. We used bivariate logistic regressions to assess changes in the demographic and contraceptive use profiles of abortion patients.

Results: In both years, slightly more than half of patients reported that they had used a contraceptive method in the month they became pregnant, though the decline from 54% in 2000 to 51% in 2014 was statistically significant ($p=.011$). The methods most commonly reported to have been used in the month the pregnancy began were condoms (28% and 24% in 2000 and 2014, $p<.001$) followed by the pill (14% and 13%, $p=.12$). There was a statistically significant increase in the proportion of abortion patients who reported using long-acting reversible methods in the month they got pregnant (0.1% in 2000 vs. 1% in 2014, $p<.001$), and the estimated number of abortions attributed to these users was greater in 2014 than in 2000 (9500 vs. 1800).

Conclusions: Contraceptive use patterns of abortion patients were similar in both time periods, and changes in method use mirrored changes in contraceptive use among the larger population of women.

Implications: Postabortion contraception counseling has the potential to help nonusers find methods that meet their preferences and to help women better use their current methods.

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1. Introduction

The incidence of abortion has been declining since 1990 [1] and has accelerated in recent years [2]. The demographic profile of abortion patients has also changed, and between 2008 and 2014, the patient population has become older and more economically disadvantaged [3].

One factor behind the recent decline in abortion is improvements in contraceptive use. In particular, more adolescents and young adult women have started relying on long-acting reversible (LARC) methods such as the intrauterine device (IUD) and the contraceptive implant [4], and there is also evidence that individuals have become better at using condoms [5]. In turn, fewer women are having unintended pregnancies [6].

Prior research of women obtaining abortions in 2000 found that 54% were using a contraceptive method in the month they got pregnant [7]. The most common method used was condoms, reported by 28% of all abortion patients, followed by the contraceptive pill (14%). Given changes in both the contraceptive use of all U.S. women and the profile

of U.S. abortion patients, it is likely that use patterns have changed among abortion patients. This study uses data from nationally representative samples of nonhospital abortion patients in 2000 and 2014 to examine pregnancy prevention methods used by abortion patients in the month they got pregnant and how they changed over time. Many abortion patients receive contraceptive counseling and postabortion contraception [8], and updated information about contraceptive use among current abortion patients can inform strategies to improve these practices.

2. Materials and methods

2.1. Data and variables

For this observational study, we used secondary data from the Guttmacher Institute's 2000 and 2014 Abortion Patient Surveys (APS). Both surveys were administered to abortion patients who were obtaining care at a randomly selected sample of facilities. The main difference between the two studies was that the 2014 survey did not include hospitals. In 2000, 100 facilities (including eight hospitals) participated in the study, gathering data from 10,683 patients (response

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rate of 82%); comparable figures for 2014 were 87 and 8380 (76%). In both years, information was gathered using a four-page, paper-and-pencil, self-administered questionnaire available in English and Spanish. Facility staff distributed surveys to all abortion patients seen during the study periods and mailed them back to the Institute at the end of each week. If surveys were not collected from at least 50% of abortion patients seen during the study period (as reported by the clinic survey administrator), the data were not used and another facility was recruited as a replacement. The surveys and data collection procedures were approved by the Guttmacher Institute's Institutional Review Board. Detailed information about the data collection strategies can be found in previously published studies [3,9].

The main dependent variable is contraceptive method used in the month the patient got pregnant; among nonusers, we distinguish between prior users and never users. The APS contraceptive use data are used in analyses of typical-use contraceptive failure rates [5,10]. Failure rate analyses rely on data from the National Survey of Family Growth (NSFG), a nationally representative survey of women of reproductive age; thus, the contraceptive questions on the APS surveys were designed to parallel the NSFG measure of contraceptive use during the month of pregnancy.

The survey collected information on date of administration and first day of the last menstrual period (LMP) (month, day and year in both cases). This information was used to estimate gestational age and month of fertilization (gestation minus 14 days). Respondents were also asked how many weeks pregnant they were, and this information was used to estimate the month of pregnancy among the 15% of respondents (in both years) who did not provide an LMP.

On both surveys, women were asked what contraceptive method, if any, they had last used, how long they had been using that method, and the month and year they had stopped using it or if they were still using it. We used the following contraceptive categorization scheme: sterilization (male and female), IUD, implant, injectables, the ring (2014 only), the pill, the patch (2014 only), condoms, withdrawal or some other method (e.g., spermicides, emergency contraception). We classified women who indicated that they had used multiple methods in the month they became pregnant (12%–15%) as having used the most effective method (with the exceptions noted below), a common strategy for documenting how well users are protected from pregnancy [11].

Women were considered to have been contraceptive users if they had been using a method during the calendar month they became pregnant and had not intentionally stopped doing so before becoming pregnant. Included in this category were women who had started using a method before becoming pregnant and had stopped after the month of conception. If the month of conception was unknown (15% in both samples), a woman was considered a user if she had been using a method up to 1 month before the abortion and a nonuser if she had stopped using a method at least 2 months before the abortion.

The specific items used to assess ever use of contraception were slightly different on the two surveys (relevant survey items are included in Appendix A). The 2000 APS first asked respondents "Have you **EVER** used any contraceptive or other method to prevent pregnancy (including rhythm, withdrawal, condoms)?" Respondents who indicated "no" on this item were directed to a subset of questions about reasons for nonuse. The 2014 survey first asked respondents "Before you became pregnant this time, had you stopped using all methods of pregnancy prevention, including condoms, withdrawal, rhythm, etc.?" Response categories included "Yes," "No" and "Never used any pregnancy prevention method." Respondents on the 2014 survey had another chance to indicate never use on the subsequent item, which asked "What was the LAST method of pregnancy prevention you used before you found out you were pregnant?" The last response category was "I never used a method." Some 302 respondents who did not indicate "Never used any pregnancy prevention" on the first item subsequently indicated that they had never used a method on the follow-up item.

An additional difference between the two surveys was that the item asking about last method used included a longer list of contraceptive methods in 2000 than in 2014, 14 and 8, respectively. Specifically, the 2014 survey did not list "Foam/cream/jelly/film," "Suppository insert," "Diaphragm," "Sponge" or "Rhythm/natural family planning." Most of these methods were reported to have been used by less than 1% of respondents in 2000 [7]. The exception was rhythm or natural family planning (NFP), which 2.2% of respondents reported to have been used in the month they got pregnant.

LARC methods are over 99% effective at preventing pregnancy. In both 2000 and 2014, a small proportion of respondents reported that they had been using these methods in the month they got pregnant. We examined each case ($n=19$ in 2000 and $n=124$ in 2014) to determine if the information provided was consistent with this categorization. In cases where it was questionable whether the respondent had actually been using a LARC or permanent method, we recoded the variable. For example, 12 respondents in 2014 reported using both the IUD and a less effective method in the month they got pregnant. We assumed that these respondents had actually become pregnant using the less effective method (e.g., stopped using the IUD and transitioned to the pill in the month they got pregnant) and recoded the contraceptive method variable accordingly (in this case, to pill). We also assessed the 18 cases where respondents reported getting pregnant while relying on sterilization (vasectomies and tubal ligations accounted for a total 13 and 5 respondents, respectively); the available data suggested that all cases were failures.

2.2. Analytic strategy

We excluded respondents who did not provide any contraceptive information ($n=282$ in 2000 and $n=203$ in 2014). In order to make the populations comparable, we also omitted the 385 hospital patients in the 2000 APS.¹ We first compare the demographic profile of abortion patients in 2000 and 2014. When comparing the contraceptive use patterns during the two time periods, we also estimated the number of abortion patients who had been using each method during the month of conception. We used bivariate logistic regression to assess whether differences in population characteristics and contraceptive use were significantly different in the two time periods. We used weighted data in all analyses, and we relied on the `svy` command in Stata version 14.2 to account for the complex sampling design (e.g., the clustering of patients within clinics).

3. Results

3.1. Change in abortion patient characteristics

The demographic profile of nonhospital abortion patients changed across a number of characteristics (Table 1). A significantly smaller proportion of patients were adolescents (under age 20) in 2014 than in 2000, and a higher proportion of patients were cohabiting. In the more recent time period, a larger proportion of patients reported family incomes <100% of the federal poverty level, even though a higher proportion of those aged 20 and older had graduated from college compared to 2000.

3.2. Change in abortion patient contraceptive use patterns

A slight majority of abortion patients in 2014 reported using a contraceptive method in the month they got pregnant, 51%, and this was

¹ Nonhospital and hospital abortion patients in 2000 had very similar contraceptive profiles. The main difference was that hospital patients were significantly less likely than nonhospital patients to have been using a method in the month they got pregnant (45% compared to 54%, $p<.01$), including a higher proportion who had never used a method (11% compared to 8%, $p<.001$).

Table 1
Percentage distribution of nonhospital U.S. abortion patients by selected characteristics, 2000 and 2014

	2000	2014	p value
Age group	% (weighted)		
<18	7.1	3.7	<.001
18–19	12.0	8.2	<.001
20–24	33.2	33.6	.692
25–29	23.1	26.5	<.001
30–34	13.5	15.9	<.001
35–39	8.0	9.1	.053
40+	2.9	3.1	.684
Union status			
Married	17.0	14.3	.003
Cohabiting	25.4	31.0	<.001
Never married	46.6	45.9	.532
Previously married	11.1	8.8	<.001
Number of prior births			
0	39.5	40.7	.377
1	27.4	26.2	.128
2+	33.0	33.1	.950
Race and ethnicity			
Non-Hispanic white	42.1	38.7	.341
Non-Hispanic black	31.0	27.6	.273
Non-Hispanic Asian	5.9	5.5	.603
Non-Hispanic other	0.9	3.4	<.001
Hispanic	20.1	24.8	.156
Highest grade completed ^a			
Less than high school	12.7	8.8	.001
High school or GED	30.3	27.9	.031
Some college	40.6	41.4	.474
College	16.4	21.9	<.001
% of federal poverty level			
<100%	25.8	49.4	<.001
100%–199%	31.0	25.7	<.001
200+%	43.2	25.0	<.001
Religious affiliation			
Protestant	43.3	30.1	<.001
Catholic	26.8	23.7	.166
Other	7.4	8.2	.144
None	22.6	38.0	<.001
Unweighted total	10,288	8380	

^a Limited to patients aged 20 and older.

significantly lower than the 54% who reported doing so in 2000 ($p=.011$) (Table 2).

Between 2000 and 2014, there was a significant increase in the proportion of abortion patients who reported using sterilization, long-acting methods and injectables in the month they got pregnant. The

number of abortions that could be attributed to these users also increased. A majority of users of long-acting methods, 62% and 53% in 2000 and 2014, respectively, indicated that they were still using the method at the time they were obtaining the abortion (not shown).

The ring and the patch were not available in 2000, and while they accounted for some 14,900 abortions in 2014, the proportion relying on the full range of short-acting hormonal methods did not increase significantly. There was a significant decrease in the proportion of abortion patients who reported using condoms in the month they got pregnant (28% and 24% in 2000 and 2014, respectively, $p<.001$) and a slight, but significant, increase in the proportion using withdrawal (7% and 9%, $p=.023$). Notably, the number of abortions that might be attributed to withdrawal was still lower in 2014 than in 2000. There was a significant decrease in the proportion of abortion patients who reported relying on “other” methods.

Increases in nonuse were seen among both types of nonusers, and for example, in 2014, a slightly higher proportion of abortion patients indicated that they had never used a method than in 2000, 10% and 8%, respectively ($p=.017$). Still, the number of abortions that might be attributed to either type of nonuse was smaller in 2014 than in 2000.

4. Discussion

The number of abortions declined 30% between 2000 and 2014, and the demographic profile of the nonhospital patient population also changed. Contraceptive use profiles of abortion patients also differed during the two time periods, although changes were, perhaps, less pronounced. In both time periods, slightly more than 50% of abortion patients reported using contraception in the month they became pregnant, and those who reported using a method were most likely to have been using condoms followed by the pill.

The proportion of abortion patients who reported that they had been using a long-acting, and even permanent, methods in the month they got pregnant increased, as did the number of abortions that might be attributed to these methods. Some respondents using LARC presumably became pregnant shortly after discontinuation. Still, a majority of respondents in both years reported that they were still using the method, suggesting that women experienced an actual failure, were pregnant at the time of insertion or were unaware that the method had migrated or been expelled. While LARC methods are highly effective, they are not perfect, and increased reliance on LARC means that more women will experience failures. Patterns with regards to permanent methods are

Table 2
Percent distribution of contraceptive method used in the month the pregnancy began among nonhospital abortion patients and estimated number of patients using each method, 2000 and 2014

	2000	2014		2000	2014
Contraceptive method	% (weighted)			Est. N of abortions associated with method	
Total	100.0	100.0		1,313,000	926,200
Using any method	54.0	50.9	.011	709,000	471,300
Sterilization	0.1	0.2	.012	700	1600
Long-acting reversible methods	0.1	1.0	<.001	1800	9500
IUD	0.1	0.8	<.001	1700	7700
Implant	0.0	0.2	.005	100	1800
Injectables	0.9	1.6	<.001	11,400	14,900
Short-acting hormonal methods	13.7	14.2	.463	179,200	131,300
Ring	na	1.4		-	12,700
Pill	13.7	12.6	.12	179,200	116,400
Patch	na	0.2		-	2200
Condom	27.7	24.2	<.001	363,400	224,400
Withdrawal	7.4	8.6	.023	97,600	79,400
Other	4.2	1.1	<.001	54,800	10,100
Not using a method	46.0	49.1	.011	604,000	454,900
Ever used	37.9	39.2	.017	498,200	362,800
Never used	8.1	9.9	.017	105,800	92,100
Unweighted Total	10,016	8177			

Number of abortions rounded to nearest 100.

supported by recent research suggesting that failure rates for these methods have increased over the last decade [12].

Patients in 2014 were less likely than those in 2000 to have used contraception in the month they got pregnant, including a higher proportion who reported that they had never used a method. The increase in nonuse is notable given that the patient population in 2014 was older and a lower proportion of patients were adolescents. It is possible that changes in the question order were responsible for at least some of this difference. Additionally, the 2014 questionnaire listed fewer contraceptive methods than in 2000. This is likely one reason the proportion of patients who reported using an “other” method in the month they got pregnant was significantly lower in 2014. In particular, patients who got pregnant while using “rhythm and natural family planning” may not have been captured. They accounted for 2.2% of abortion patients in 2000, a larger proportion than all respondents who made up the “other” category in 2014. Patients who used only this method in the month they got pregnant and who failed to report it on the “other” option in 2014 could have been categorized as nonusers. Still, given the substantial decline in abortion incidence, even if the proportion of abortion patients who had never used a method is inflated in 2014, the number of abortions attributed to this group is smaller than in 2000.

This study has several shortcomings. The data on contraceptive use may contain some inaccuracies as it depended on women recalling methods used several weeks or even several months in the past, and we only had information about the specific month, but not day, they stopped using them. Social desirability may have led some women to report that they were using a contraceptive method when they were not, though we do not expect that this dynamic would have changed over time. The two survey instruments adopted slightly different strategies for measuring never use of a method, and the 2014 survey did not list as many contraceptive methods. These differences may have resulted in an underestimation of patients who were using rhythm and NFP in 2014 and an overestimation of nonuse. Similarly, more abortion clinics have started providing miscarriage management, and while our survey was only supposed to be distributed to abortion patients, some miscarriage patients with intended pregnancies may have filled it out. This, too, could have contributed to the increase in nonuse. Finally, hospital patients only accounted for 4%–5% of abortion patients in both years [2,13]. However, this population had a slightly different contraceptive use profile than nonhospital patients in 2000, and their exclusion may have biased the findings.

Research suggests that most abortion patients want to obtain a contraceptive method at the time of their abortion [8], and information about the contraceptive use patterns of this population could help inform contraceptive counseling strategies. Approximately half of the

abortions in 2014 were accounted for by women who were not using a contraceptive method in the month they got pregnant. That half of women were using a contraceptive method does not mean that contraception is ineffective. Rather, it indicates that women and couples are imperfect. Thus, during postabortion counseling, nonusers might benefit from information about the times in their menstrual cycle when they are at highest risk of pregnancy [7], while both nonusers and individuals who experienced contraceptive failures might benefit from information about alternative methods or ways to use methods more consistently.

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