

# Regret After Female Sterilization Among Low-Income Women in São Paulo, Brazil

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*According to a 1992 survey of 407 sterilized women living in two low-income areas of greater São Paulo, three-quarters of the women underwent sterilization immediately following a cesarean section, and the same proportion said they were completely satisfied with their decision. Seventeen percent, however, said they now regretted their decision or had done so in the past, 6% were somewhat or very ambivalent, and 2% were dissatisfied (but did not regret the operation). Four-fifths of the sample paid for their sterilization, although voluntary sterilization is a legally ambiguous procedure in Brazil that is often considered illegal. Among one-fifth of the sample, the operation was deemed medically necessary and provided through official channels without charge. Results of a multiple regression analysis predicting age at sterilization indicate that women who started having children at a young age, who had a culturally acceptable number of children, who had had problems with a reversible method and who were comparatively better educated were all more likely to have been sterilized before age 30 than at age 30 or later.*

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Sterilization is currently the most widely used contraceptive method in the world: An estimated 170 million couples were relying on it as of 1990,<sup>1</sup> the majority (138 million) protected by female sterilization rather than vasectomy. Because a large number of women in Latin America, Asia and the United States become sterilized each year,<sup>2</sup> the context in which women decide on and obtain the procedure warrants close examination, especially given the growing concerns with reproductive human rights,<sup>3</sup> women's status<sup>4</sup> and quality of care.<sup>5</sup> In particular, it is important to gain more information about the factors that contribute to women's subsequent feelings of regret over sterilization.

Sterilization regret is difficult to understand in isolation from the social context in which services are provided. Levels of regret vary enormously, both from country to country and within the same country. For example, U.S. studies conducted between 1985 and 1991 found levels of regret ranging from 2% to 23% of

sterilized women.<sup>6</sup> Such divergence in rates of sterilization regret is related to the divergence in causes of regret. For example, many women in developed countries who seek reversal do so because they plan to start another family in a new marriage, while in developing countries, many women do so because a child has died.<sup>7</sup>

Several factors have been associated with regret, including age and parity, infant mortality, divorce rates, the quality of family planning services and personal factors such as age at sterilization, the number and sex of living children, and the quality of the relationship between spouses. Thus, while events that occur after the procedure play a major role in determining regret, factors that were in place beforehand are also important.<sup>8</sup>

## Sterilization in Brazil

Female sterilization is the most widely used contraceptive method in Brazil: In 1986, 27% of married women aged 15–44 had been sterilized,<sup>9</sup> and in São Paulo State, the proportion among similar women aged 15–49 was 31%.<sup>10</sup> These high prevalence levels do not necessarily reflect a high quality of reproductive health care, however. In fact, some have argued that Brazilian women's disproportionate reliance on sterilization is a response to the lack of alternative methods and the dangers of illegal abortion.<sup>11</sup>

The issue is complicated by an ambiguous legal situation. Despite the stip-

ulation in Brazil's constitution that all couples are free to choose their contraceptive method,<sup>12</sup> voluntary sterilization is not explicitly permitted. The Brazilian Medical Council has not recommended it as an ethical procedure,<sup>13</sup> and sterilization is not officially provided or promoted by the National Health System's Comprehensive Women's Health Care Program (Programa de Atenção Integral à Saúde de Mulher, or PAISM). Health ministry guidelines recommend sterilization only for women older than 35 whose health would be affected by another pregnancy.<sup>14</sup>

In practice, however, female sterilization is widely and clandestinely performed through cesarean sections.<sup>15</sup> The ability to pay is an important factor associated with obtaining the procedure, especially in Brazil's more affluent Southern states. For example, 65% of sterilized women in São Paulo State paid for the procedure with their own money.<sup>16</sup>

Such a clandestine situation\* does not allow for appropriate counseling and education, factors essential to the sterilization decision-making process, particularly to avoid subsequent regret. Regret is a serious complication of tubal ligation, since reversal is expensive, uncertain, highly specialized and not accessible or feasible for many women. Many studies of sterilization reversal have emphasized the role played by the absence of counseling.<sup>17</sup>

Studies of sterilization regret in Brazil are rare. One 1985 study conducted with outpatients of a hospital in Campinas found that age at sterilization was a major factor—50% of the women who were younger than 25 when they had the operation regretted it.<sup>18</sup> These results are not generalizable, however, since these women are more likely to have had health complaints, which could influence regret. Other studies give some indications about the occurrence of sterilization regret, but are not specifically designed to study its prevalence. For example, in a mid-1980s study of contraceptive use among low-income women in Rio de Janeiro, 15% of

\*A proposal to regulate sterilization was recently introduced in the Brazilian parliament, but only the initial regulatory stages were approved. (See: "O Direito de Não Ter," *Revista Veja*, June 29, 1994, p. 96.)

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sterilized women said they would like to have another child.<sup>19</sup> A reproductive health study conducted in São Paulo in 1992 found that 89% of sterilized women were satisfied with the procedure, but 11% regretted that they had had it.<sup>20</sup>

This article combines quantitative and qualitative data from a São Paulo study conducted from February through July 1992 on the prevalence and nature of regret following sterilization and related factors. We focus primarily on how women felt about their sterilization in terms of satisfaction, dissatisfaction and regret.

## Methodology

We selected for the study two low-income sections of the São Paulo metropolitan area that had rates of fertility, cesarean section and infant mortality similar to overall state rates. Each section also had to have an accessible hospital with a maternity unit and a family planning program or clinic, but no sterilization clinic. We randomly selected 45 streets in the two municipalities, using a sampling cluster system. Interviewers visited those streets up to three times to follow up women who were not in their homes at the time of the first visit. Visits were conducted on at least one weekday and one weekend day.

A total of 3,803 households were recorded in the streets identified in the cluster sampling; no one was at home at any time in 11% (419) of these visits. There were 4,976 women aged 15–49 in the remaining 3,384 households. We interviewed 3,149 women (63% of those identified). Despite the multiple attempts to locate them, 34% of the identified women were unavailable for the interview; only 3% of those who were asked refused to be interviewed.

The survey was conducted in two stages. In the first, during a face-to-face interview, women were asked 12 questions about their contraceptive use. (The age distribution of these women was similar to that for the São Paulo metropolitan region as a whole.<sup>21</sup>) Three-fifths of the 3,149 women aged 15–49 were using a contraceptive method at the time of the survey—26% the pill, 22% sterilization and 12% other methods. (Among those in a union, the level of use was 80%, with 34% relying on the pill, 29% on female sterilization and 16% on other methods.)

In the second stage of the survey, the 407 women relying on sterilization who were younger than 40 and who had been sterilized at least one year before the survey were asked to complete a structured questionnaire containing items on their reproductive history, previous contraceptive

use, the decision-making process leading to their sterilization and their adaptation to sterilization following the procedure. This article focuses primarily on the data collected from this group of women.

Finally, qualitative data were collected through in-depth discussions with 15 women randomly selected from among those who were dissatisfied with their sterilization.\* These 45–60-minute interviews were conducted between two weeks and three months after the initial interview. We obtained additional information from women's responses to the open-ended questions in the structured questionnaires, and from the spontaneous remarks made by 98 women whom we classified as not totally satisfied with their operation. (The interviewers were trained to record all spontaneous comments made during or after the interview.)

For the quantitative analyses, we calculated frequency distributions for each variable, searched for associations between independent and dependent variables and performed multiple regression analyses of any correlations. We tested hypotheses at the bivariate level using a chi-square test, and used a t-test for comparison of means. When variances differed for the two groups (i.e., when p-values equaled or were less than .05), the separate variance estimate was used to calculate the t-value. When variances were not different, the pooled variance was used. For the multiple regressions, we fitted the model using the stepwise method to assess how a group of independent variables predicted the woman's level of satisfaction and age at sterilization. (SPSS/PC+ was used for data processing and analysis.) Qualitative analysis was performed using content analysis.

## Results

Ninety-three percent of women in the sample were in a union (formal or informal), and 88% had always lived with the same partner. Sixty-six percent had attended school for four or fewer years, while 14% had gone to school for more than eight years. Sixty-two percent of the women were housewives, and among the remaining one-third who had a paying job, about one-half worked in the service sector as maids, cleaners or hairdressers. Most husbands were nonspecialized workers in local industry or trades; 70% of spouses had a monthly wage of less than US \$75 per capita. The women averaged 3.2 children, and almost 70% of respondents had three living children.

While 73% of the women had request-

ed sterilization themselves, 19% had a doctor specifically recommend it to them, 6% said their doctor offered it as one choice among many, and about 1% said they had been sterilized without their consent.

Most of the procedures (75%) were performed in private hospitals in the state of São Paulo, 16% were performed in public hospitals, and the remaining 9% in either public or private hospitals located in another state. The great majority of sterilizations (88%) were postpartum procedures, and most (77%) were performed after a cesarean section.

Eighty percent of the women paid for their procedure, with the form of payment varying according to type of procedure (interval or postpartum) and of medical insurance (public or private). The most common payment scenario—accounting for 55% of the cases—was having the cesarean section paid for by medical insurance and the tubal ligation paid for by the woman. Such a scenario is acceptable to clients who see it as the main guarantee that the doctor will perform the sterilization.

Medically indicated sterilizations are available from the government free of charge; 20% of the women obtained sterilizations in this way. The mean family income level of these women was significantly lower than that of women paying for the operation (76% of the minimum salary, compared with 110% of the minimum salary<sup>†</sup>).

When asked how they learned about sterilization, 38% of respondents said they heard about it from someone who had had one, 32% were informed by friends or relatives, 20% by doctors, 3% by the media and 7% by other sources, such as family planning talks, meetings or sex education classes. Nearly three-quarters (73%) of sterilized women had been counseled before the operation, most (95%) by the doctor who performed the operation.

## Method Knowledge and Use

We gauged contraceptive knowledge by first asking respondents whether they had heard of each method (with and without prompting). Women also responded to a

\*The discussion guide for these interviews included questions on planning family size, use of reversible contraceptives, the sterilization decision-making process, the reasons for deciding on sterilization, the reasons for dissatisfaction or regret, the woman's understanding of the procedure's irreversibility and the surgical technique involved, the value she attached to motherhood and children, her personal aspirations and the nature of her relationship with her husband.

†The minimum monthly salary in February 1992 was US \$65. We applied a deflation factor to data collected after this date.

**Table 1. Sterilized women's responses to items measuring contraceptive knowledge and level of satisfaction with sterilization, São Paulo, Brazil, February–July 1992 (N=407)**

Item	% agree	% disagree	% neither agree nor disagree
<b>Knowledge</b>			
All contraceptives affect women's health.	64	30	6
If used properly, the pill does not fail.	57	40	3
The condom is not reliable because it fails too much.	79	10	11
It is very difficult to reverse a sterilization by an operation.	67	19	14
The male operation makes the man impotent.	17	54	29
Sterilization is the only reliable method.	70	25	5
After sterilization all women become frigid.	16	80	4
The best way to have sterilization is during a cesarean section.	82	15	3
It is much easier for a woman than for a man to be sterilized.	51	40	9
A woman who has been sterilized can have more children if she wants.	40	44	16
<b>Satisfaction</b>			
I feel that sterilization has made my life better.	66	16	18
I wish I had been sterilized later in life.	21	73	6
I became more interested in sex after sterilization.	47	36	17
I am satisfied with sterilization because now I do not worry about contraception.	91	7	3
If I had to choose a contraceptive method again, I would choose the operation.	84	15	1
After sterilization my husband became more interested in sex than I am.	44	37	19
I feel that sterilization has not had any good effects on my life.	14	81	5

set of questions about specific attributes of contraceptive methods. For the general and in-depth knowledge questions, we pooled responses to create a composite index with a maximum score of 20.

The pill was the best known method, with 100% of respondents saying they had heard about it and 96% mentioning it unprompted; it was followed by the condom (identified by nearly 100%) and rhythm (by 91%). While the composite general knowledge scores were quite low for 26% of the sample (1–6 points out of a possible 20), 37% had a medium level of knowledge (7–9) and 37% had a relatively high knowledge score (10–17).

Answers to the more detailed questions revealed a fair amount of misinformation about effectiveness and safety. As Table 1 shows, 82% of respondents believed that the best way to become sterilized is through a cesarean section, 79% that the condom is unreliable because it fails too often, 70% that sterilization is the only reliable method and 64% that all methods affect women's health. Although the majority (57%) acknowledged that the pill is reliable if taken properly, a high proportion (40%) disagreed with this statement.

Women seemed moderately well informed about the lack of sexual consequences with female sterilization; 80% disagreed that women become sexually nonresponsive after sterilization. A total of 46% of the sample were unsure (29%) or agreed (17%), however, that vasectomy causes impotence. Misconceptions about the permanence of sterilization indicated that sterilized women were inadequately informed: A total of 55% were unsure

(16%) or agreed (40%) that a sterilized woman could have children after the operation. Although about two-thirds of the sample (67%) realized that a reversal of the procedure is difficult, the remaining one-third were unsure (14%) or misinformed on this issue (19%). Summary scores indicate that 89% of respondents were poorly or moderately informed, with 32% scoring quite low (1–6 points), 57% scoring in the low-to-medium range (7–12), and 11% having a high level of knowledge (13–20).

When we combined both indices, we found that 24% had a low overall level of knowledge, 40% medium scores and 36% high knowledge scores. This variable was positively associated with the number of years of education and with income. For example, among women who scored highest, about 83% had four or more years of education, while only 17% had three or fewer years of education ( $p < .001$ ).

Only 9% of the women had never used a method prior to sterilization. The majority of the sample (85%) had ever used the pill, 33% had used withdrawal, 32% the condom and 13% rhythm. Women who had never used a reversible method before becoming sterilized had fewer years of education and lower contraceptive knowledge scores than women who had done so.

Many women (44%) reported having had problems with a reversible method, particularly side effects from the pill, and virtually the same proportion (43%) had experienced a contraceptive failure prior to sterilization—again, mostly with the pill. Women who had experienced a method failure were more likely to have used a

greater variety of methods than those who had not. A history of problems with a reversible method was significantly associated with the decision to become sterilized before age 30: About 61% of such women reported problems with a reversible method, compared with 47% of women sterilized at age 30 or older ( $p < .01$ ).

## Adapting to Sterilization

We used a series of direct and indirect questions to assess whether women regretted having been sterilized, the reasons for that regret, and whether they were satisfied or dissatisfied with their sterilization. All women who responded “no” to the questions on whether they currently regretted their decision or were dissatisfied were asked whether they had any earlier feelings of regret. We also addressed the duration and intensity of any feelings of regret.

When asked directly, “Do you regret having been sterilized or have you ever regretted having been sterilized?” approximately 12% said they currently regretted it, and another 8% said they had regretted the procedure at some point in the past.

Table 1 presents responses to questions assessing overall levels of satisfaction with the operation. Some of the responses suggest that women were somewhat dissatisfied with the method—21% would have preferred to have been sterilized later in life; 15% would not choose sterilization if they had to make the decision over again; and 14% felt that the operation had not had a good effect on their lives. About 17% reported that their health had been affected by the operation (not shown).

We combined these responses to create an overall index of satisfaction with sterilization. Using this scale, we found that 9% of the women were extremely satisfied with the procedure, 65% were very satisfied, 22% were fairly satisfied and 5% were unsatisfied.

When women who regretted having been sterilized were asked to give reasons, one-third of respondents (33%) mentioned that they wanted to have a child of a particular sex; these women were more likely to specify wanting to have a girl (63%) than a boy (37%). Seventeen percent of respondents simply wanted to have another child. About 18% regretted the operation because it had affected their health or menstruation, 9% had changed their mind about wanting the procedure and 6% reported having sexual problems after the operation. A further 6% had separated or remarried after the procedure, while 12% gave other reasons, such as religious feelings or feelings of loss, sadness or inferiority because they

could not conceive bear another child.

Clearly, adapting to sterilization can be a difficult process for many women, and the emotional response is highly complex and often contradictory. Because women may be satisfied with the procedure for one reason and dissatisfied for another, their feelings can be difficult to categorize.

This wide variation in acceptance is reflected in the following categorization: Of the women in the sample, 308 (76%) were totally satisfied with the procedure because they never regretted it and would choose the method again; seven women (2%) were dissatisfied but never reported feelings of regret; nine women (2%) were somewhat ambivalent about sterilization, as they reported regretting some aspect of the procedure and yet were satisfied with at least one other aspect of it; 14 women (3%) were very ambivalent, in that they said they would not choose sterilization again but were both satisfied and dissatisfied with some of the procedure's aspects; and 69 women (17%) currently regretted their sterilization or had done so in the past.

We collapsed these last four categories into a broad dissatisfaction variable, which in later analyses is contrasted with the total satisfaction variable. In contrast, our regret variable refers to the more straightforward expression of current or past regret over having had the procedure.

We also asked the women whether they had sought information about a reversal. Only 6% acknowledged that they had. We classified one-fifth of these women as totally satisfied, since they otherwise had not reported any other indication of dissatisfaction or regret. We did not consider a request for information on reversal to indicate regret, because an information request is not necessarily the same as a request for reversal and because of the high level of misinformation about the procedure's irreversibility.

### Associations with Regret

A direct acknowledgment of current or past regret was associated with the respondents' age, marital status and years of education. Among those most likely to express regret were 30–34-year-olds, women who were sterilized before age 30, those whose marriage had broken up and those with more years of education than the average. The comparatively better educated women probably were more likely to obtain reliable information about sterilization than women with fewer years of schooling; it may be that women who regretted the procedure were more aware

of its irreversibility. (Some women who were unaware of the procedure's irreversibility were nevertheless classified as totally satisfied.)

Regret was not associated with a woman's number of pregnancies, live births or living children, with age at first birth, with experience of abortion or miscarriage, or with previous contraceptive use. An expression of regret was, however, associated with previous contraceptive failure. About 55% of women who reported regret had had a contraceptive failure, compared with 40% of women who did not report regret.

The broader classification of dissatisfaction with the procedure was associated with a woman's number of living children. Women who reported some level of dissatisfaction had a mean of 2.9 living children, while those who were totally satisfied had an average of 3.2 children ( $p < .05$ ).

Neither regret nor dissatisfaction was associated with the type of delivery of the last birth (vaginal or cesarean), the type of hospital at which the sterilization was performed or the time since the operation. However, both variables were associated with payment for the procedure. Women who paid for the operation were less likely to regret having had it: Whereas 17% of women who paid for their procedure ultimately regretted having had it, 28% of those who had not paid regretted having had it ( $p < .05$ ).

Women who said they had been influenced or pressured to have the operation were more likely to express regret than those who said they made the decision themselves. Health, financial or domestic problems were important factors that pressured women to choose sterilization, leading to regret and dissatisfaction. Other factors that contributed to pressures to choose sterilization included too many children, an alcoholic husband, relationship problems and the fear of having another disabled child.

Women whose main reason for seeking sterilization was satisfaction with their family size were less likely than women citing other main reasons to regret their sterilization. The results of a multiple regression analysis confirmed this finding.

When we made the level of satisfaction the dependent variable, the most important factors affecting it were reasons for sterilization (other than satisfaction with family size), type of payment for the operation, age at sterilization and marital stability. Although the regression analysis showed that these variables explained a significant amount of variation in the level of satisfac-

**Table 2. Selected means (and standard deviations) for characteristics of sterilized women, by age at sterilization (N=407)**

Variable	<30 yrs.	≥30 yrs.	t-value
Mean yrs. of education*	4.4 (2.8)	3.8 (2.8)	2.21
Mean age at first birth***	20.1 (2.9)	22.5 (4.2)	-6.12
Mean no. of living children***	3.0 (.98)	3.5 (1.3)	-3.89
Mean satisfaction score*	17.0 (2.8)	17.6 (2.2)	-2.50

\* $p < .05$ . \*\*\* $p < .001$ . Note: Two women did not provide data on age at first birth, and one woman did not give her number of living children.

tion, the overall variation explained was very small (an adjusted  $R^2$  of 13%).

Women who remarried (after either divorce or the death of a spouse) or who remained single after a separation were more likely to regret their sterilization than those whose initial marriage was intact. Women who lost a child were also more likely to regret the procedure than those who did not. Health complaints after sterilization were associated with both measures of regret. However, having been counseled before the procedure was associated with the broad measure of dissatisfaction but not with explicit regret.

Undergoing sterilization at a young age was significantly associated with regret. While the median age at sterilization among the women surveyed was 28, most respondents (94%) were younger than 35 when they had the procedure, and 65% were younger than 30. Two women in the sample were sterilized at age 19.

Approximately 66% of women who regretted having had the procedure were younger than 28 when they had it, compared with 40% of women who were satisfied with the operation ( $p < .001$ ). Compared with women sterilized when they were age 30 or older, women sterilized before age 30 had more years of education, started having children earlier, had fewer children and had slightly lower overall levels of satisfaction (see Table 2). A woman's number of children probably does not influence her decision to seek sterilization at an early age; instead, a small number of children is likely a consequence of early age at sterilization. Women who are sterilized at a young age start their families at younger ages, and thus seek sterilization sooner.

We found no association between income and age at sterilization among women with four or more years of education. However, among less educated women (the bulk of the sample) who were sterilized before age 30, 60% lived in families earning less than

the minimum salary. Among similar women who were sterilized at age 30 or later, the comparable proportion was 79% ( $p < .05$ ). This implies that higher income women have greater access to sterilization at younger ages, confirming that age does not seem to affect access to sterilization.

According to a stepwise multiple regression analysis using age at sterilization as the dependent variable\* (since it was an intervening variable between regret and other independent variables), 43% of the variation in age at sterilization can be explained by four variables: age at first birth, number of living children, problems with using reversible contraceptives and years of education (see Table 3). Therefore, women who started having children at a young age, who had a culturally acceptable number of children, who had problems with reversible contraception and who had more years of education than their peers were all more likely to undergo sterilization at a young age.

### Qualitative Observations

#### Nature of Regret

We were especially interested in whether the qualitative data would clarify inconsistent messages about sterilization among women who answered they were both satisfied and dissatisfied with the operation, or who said they regretted it but were still satisfied. Women described regret as feelings of sorrow, sadness and loss. They also spoke of ambivalent and sometimes contradictory feelings of varying durations.

This sense of loss was mixed with other feelings, such as grief over the death of a child or a feeling of losing future opportunities in life. For example, Sandra, age 30 (all names are fictitious) said: "I regret I had the operation because he was the last one I had. I planned everything, I got clothes for him and he died. I don't regret the operation; it was a sadness because he died."

The loss of the capacity to bear a child was often felt as a longing for a baby. As Benedia, age 35, noted, "Yes, I am satisfied with sterilization because I cannot have a baby every year. If I had not undergone sterilization I would probably have nine or 10 children. Sometimes, I regret because now my son has grown up and I am longing for a baby."

Adapting to sterilization is a dynamic process that involves major life changes, and unexpected events may play an im-

portant role in causing regret. Moreover, feelings of regret are dynamic, and thus are especially hard to measure. For example, one woman who expressed regret when responding to the questionnaire in March 1992 said three months later that she had overcome her feelings of regret because her 18-year-old daughter had had a baby boy and she was elated about being a grandmother.

#### Reasons for Sterilization

Some women, for whom unwanted pregnancy would bring more trouble into their lives, saw contraception as an immediate concern that needed to be resolved and then put out of the way. Contraceptive failure and the lack of, or problems with, alternative methods led some women to seek sterilization as a solution; as Kátia, aged 35 said, "My husband drank and was a womanizer. He would only get calm if I went to bed with him. I used the pill but it didn't work. The doctor did not believe I was on the pill when I got pregnant. Then I found I had to be more practical and I said: 'I am going to have the operation.'"

The choice of sterilization was also related to the fact that contraception has long been considered a women's issue. Lack of information about and mistaken impressions of vasectomy led some women to opt for female sterilization even when vasectomy was also available. As Neide, age 27, remarked, "The doctor advised my husband to have the operation but I did not allow him to do it. I went to the doctor and I asked for me to have the operation. I did not trust that the operation in my husband would work. I preferred to have it; today I regret I had."

More important, some women had not received any contraceptive advice or information and were sterilized without knowing about alternative methods. Isaura, age 25, commented, "I regret because now I know that there are other methods. If I knew them before I would not have had the operation."

Some misunderstandings were related to misperceptions of the tubal ligation procedure. Many respondents described two separate surgical techniques, either cuts (*cortadas*) or ties (*amarradas*), and stated that the latter kind can be reversed, while the former cannot. Some thought reversal could occur spontaneously under special conditions,

such as with weight gain or over time.

The doctor was often quoted as the source of misinformation about future fertility, as Antonia, age 26, reported: "I want to have more children. I just went to this operation because I needed it. I did not know that it is very difficult to reverse it. The doctor assured me that I would get pregnant after three years."

### Discussion

The level of contraceptive prevalence among these low-income urban women is consistent with that found in previous surveys and confirms the predominance of two methods—the pill and sterilization. Data from 1986 showed that patterns of sterilization provision differ greatly in the developed South compared with the underdeveloped Northeast of Brazil: There are far fewer cesarean sections performed in the Northeast, and many more women receive sterilizations free of charge.<sup>22</sup>

In our São Paulo sample, women had access to sterilization if they could pay for it, and in most cases, cesarean section was used to gain access to surgery. Although a payment-based system facilitates access to a quasi-legal procedure for women who can afford it, payment poses obstacles for many poor women who need sterilization but cannot obtain it. This finding is consistent with those of previous studies.<sup>23</sup>

Payment requirements for the procedure, its association with cesarean section, the absence of eligibility criteria and the lack of appropriate counseling and information are definitely serious problems of provision. The clandestine nature of sterilization in Brazil impedes women from exercising an informed choice and facilitates abuse.

The sterilization decision-making process and its acceptability are influenced by such issues as the medical profession's pecuniary interest in performing nonregulated sterilizations and the lack of any official guidelines for the procedure. The current provision of female sterilization in Brazil violates women's reproductive rights—the right to

**Table 3. Results of multiple regression analysis predicting age at sterilization**

Variable	Regression coefficient	Standard error	t-value	p-value
Age at first birth	0.648708	0.042534	15.252	0.0000
No. of living children	1.629559	0.137365	11.863	0.0000
Problems with reversible methods†	-1.250338	0.308583	-4.052	0.0001
Yrs. of education	-0.129852	0.051575	-2.518	0.0122
Constant	11.746115	1.255722	9.354	0.0000

†Presence or absence of problems using reversible methods—dummy variable with yes/no levels (yes=1, no=2).

\*The equation predicting age at sterilization is:  $A_s = 11.746115 + 0.648708A_{FB} + 1.629559C_L - 1.250338P - 0.129852E$ , where  $A_s$ =age at sterilization,  $A_{FB}$ =age at first birth,  $C_L$ =number of living children,  $P$ =problems with reversible methods and  $E$ =years of education.

be fully informed about the procedure, the right to be properly assisted in deciding on the operation and the right to legal and free access to sterilization and other contraceptives. It is understandable that the large majority of women in our sample agreed that the best way to obtain a sterilization was through cesarean section, since this is the only way most women can obtain one.

Women's misunderstanding of the irreversibility of sterilization is an important finding of this article. Several international organizations that promote or support family planning programs that offer sterilization have recommended emphasizing that the procedure is permanent.<sup>24</sup> Ensuring that the procedure is correctly understood is a crucial ethical requirement for the acceptance of sterilization in many developing countries where much of the population is poorly educated and accurate information is not always available.

Most respondents seemed satisfied with their sterilization; however, an important proportion of women (24%) were not. Moreover, the serious problems concerning the provision of services and the prevalence of misconceptions about reversibility raise doubts about the satisfaction findings. On the other hand, inconsistencies and ambiguities associated with dissatisfaction are not surprising, given that the reactions of sterilized individuals are shaped both by a combination of various dimensions of satisfaction and dissatisfaction<sup>25</sup> and by the quality of information received about the procedure.

Our findings suggest a relationship between the level of understanding about sterilization and dissatisfaction and regret. Belief in reversibility and regret over the procedure for fertility-related reasons appear closely related: If women truly believed they could have children after sterilization, they would have no reason to regret their decision or to be dissatisfied with the method (unless they tried to act on that belief). Nevertheless, these results should not be extrapolated to Brazilian women in general, and to better educated Brazilian women in particular, and further research is required on this issue.

Age at sterilization was a major factor associated with regret. A lack of alternative methods led some women to be sterilized at a young age, especially when they had had problems with the pill or had experienced a contraceptive failure. An unintended pregnancy, in turn, can precipitate the decision to be sterilized, since the procedure is usually performed at the time of delivery: A precipitous decision may also partially explain the association be-

tween contraceptive failure and regret and dissatisfaction in the Brazilian context.

The association between payment for sterilization and satisfaction with the operation suggests that women who pay for their sterilization are likely to feel less regret and dissatisfaction. Conversely, if sterilization services are provided gratis, health professionals probably will have to offer some additional counseling or decision-making assistance to women seeking sterilization.

The findings of this article lend strong support to current legislative efforts in Brazil to properly regulate the availability of sterilization in ways that enhance and safeguard women's reproductive rights. They also illustrate how the general practice of a contraceptive method can evolve in response to aspects of its availability relative to other methods. Too often in our assessment of the consequences and implications of different contraceptive practices, we pay insufficient attention to the deeply felt, but complex and often weakly articulated, personal feelings of the users themselves.

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### Resumen

De acuerdo a una encuesta realizada a 407 mujeres esterilizadas que viven en dos zonas de bajos ingresos de São Paulo, un poco más de las tres cuartas partes se habían sometido a la operación inmediatamente después de una cesárea y la misma proporción indicó que estaban muy satisfechas con la decisión adoptada. Sin embargo, el 17% expresó que ahora o anteriormente se arrepintieron de haber tomado esa decisión, el 6% tenían ciertas dudas y opinaron en forma ambivalente y el 2% estaban desconformes (pero no se arrepentían de la operación). Cuatro quintos de la muestra pagó por los servicios de esterilización, lo cual es una intervención técnicamente ilegal en el Brasil. Los resultados obtenidos mediante un análisis

de regresión múltiple para identificar la edad de las pacientes en el momento en que se realizó la intervención indican que las mujeres que comenzaron a procrear muy jóvenes, que tenían un número de hijos aceptables para el medio cultural al que pertenecían, que habían tenido problemas con métodos anticonceptivos reversibles y que tenían un nivel de educación comparativamente mejor, eran más proclives a someterse a la esterilización antes de cumplir los 30 años de edad.

### Résumé

Selon une enquête menée auprès de 407 femmes stérilisées habitant dans deux zones défavorisées de l'agglomération urbaine de São Paulo, un peu plus des trois quarts de ces femmes se sont fait opérer immédiatement après une césarienne, et la même proportion de femmes ont déclaré être entièrement satis-

faites de leur décision. Cependant, 17% ont affirmé qu'elles regrettaient alors leur décision ou l'avaient regretté dans le passé, 5% étaient quelque peu ou très ambivalentes, et 2% étaient insatisfaites (mais ne regrettaient pas l'intervention). Les quatre-cinquièmes des femmes de l'échantillon avaient payé leur stérilisation qui constitue techniquement une intervention illégale au Brésil. Les résultats d'une analyse de régression multiple prédisant l'âge au moment de la stérilisation indiquent que les femmes qui ont commencé à avoir des enfants en bas âge, qui avaient un nombre culturellement acceptable d'enfants, qui avaient éprouvé des difficultés avec une méthode réversible et qui étaient comparativement mieux instruites étaient toutes plus susceptibles d'avoir été stérilisées avant qu'après l'âge de 30 ans.