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INTERVAL STERILIZATIONS

A SUBSTITUTE FOR POSTPARTUM PROCEDURES, AN EXAMPLE FROM SOUTHEAST BRAZIL

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Abstract—From December 1979 to February 1980, data were collected on access to postpartum sterilization for all obstetric patients at a large maternity hospital in Campinas, Brazil. Of the 827 women wanting no additional children and having knowledge of sterilization, 481 (58%) reported that they wanted to be sterilized. Of these women, 226 (47%) were sterilized postpartum. One year following their deliveries, follow-up forms were administered to the women desiring sterilization, but who had not been sterilized postpartum, to determine if they had been sterilized over the course of the year. Only 13% of the women had been sterilized, but almost 75% of the women not sterilized said they were still interested in getting sterilized. Of the women interviewed, 18% either had become pregnant again since the initial survey or were currently pregnant.

INTRODUCTION

Female sterilization is one of the two* most important methods of family planning in Brazil. Estimates of the proportion of currently married women aged 15–44 years who have been sterilized range from a low of 9.6% in the State of Bahia to a high of 18.9% in the State of Pernambuco, based on results of six surveys conducted in Brazil [1–7]. Estimates from four of the surveys carried out in the Northeast show that about 75% of the sterilizations are performed in the same calendar year as the last birth and that about 85% of these sterilizations are performed together with a cesarean delivery. Though the survey carried out in Sao Paulo does not ask women about type of delivery, we may infer, based on the results of the other surveys, that 85% of the 75% of women reporting a sterilization in the same calendar year as the year of the last birth also had sterilizations at the time of cesarean delivery.

While the Brazilian Medical Ethics Code condemns sterilization, exceptions are permitted if women are at high risk if they become pregnant and women with previous cesarean deliveries are considered to be at high risk [8, 9]. Studies conducted at several hospitals in the State of Sao Paulo, Brazil, show that the percentage of women sterilized postpartum is much higher among women having cesarean deliveries than among women having vaginal deliveries [10, 11]. Moreover, regardless of whether a woman is sterilized, the probability that she has a cesarean delivery increases with her socioeconomic status. This paper focuses on access to interval sterilization in an effort to compare relative accessibility of postpartum and interval procedures†.

MATERIALS AND METHODS

From December 1979 to February 1980, data were collected on access to postpartum sterilization for all obstetric patients at a large maternity hospital in Campinas, Brazil. This hospital serves women who pay for their care in various ways: 70% through social security, 18% through private insurance or private funds and 11% gratis (indigent). The information obtained from these patients includes sociodemographic characteristics, contraceptive practices, desire for additional children, type of delivery and desire for sterilization. Of the 827 women wanting no additional children and having knowledge of sterilization, 481 (58%) reported that they wanted to be sterilized. Of these women, 226 (47%) were sterilized postpartum. The percentage sterilized was higher among women paying for their care with private insurance or private funds (75%) than among women whose care was financed through social security (42%) or who were indigent (20%). Moreover, a significantly greater percentage of women in the privately funded group had cesarean sections (82%) than in the public insured group (48%) or the indigent group (20%)‡.

A follow-up form was designed for the remaining 255 women desiring sterilization who were not sterilized postpartum. This form obtained information on pregnancy and hospitalization since the last delivery and access to interval sterilization. The follow-up form was administered through personal interviews by medical students from a local university from December 1980 through February 1981. Of the 255

*The other is oral contraceptives, ranging from a low of 9.6% in the state of Bahia to 27.8% in the state of Sao Paulo.

†Throughout this paper, a postpartum sterilization refers to a sterilization procedure performed on a patient any time during hospitalization for delivery. An interval sterilization refers to a sterilization procedure performed on a patient any time up to 1 year after hospitalization for delivery.

‡Among all deliveries, the proportion of cesarean sections is lower (38%) but shows the same relationship with payment status [12].

women followed up, questionnaires were completed by 155*. The remaining 100 were lost to follow-up.

The 39.2% loss-to-follow-up rate may be partially attributed to the fact that the follow-up was not built into the original study design. After analysis of the initial data was completed, an interest developed in interval sterilization for women desiring sterilization who were not sterilized postpartum. The follow-up questionnaire was administered one year after the initial questionnaire, and many of the women could not be reached. Many had moved and others had given incomplete addresses.

Statistical tests comparing sociodemographic characteristics were conducted for the women followed up and those lost to follow-up†. There were no significant differences between the two groups with respect to age, number of living children and type of delivery. There were significant differences ($P \leq 0.01$) with regard to education: Women lost to follow-up were less well educated than women who were followed up. There were also significant differences ($P \leq 0.05$) with respect to payment status: Women lost to follow-up were more likely to be indigent or to pay for their care through the social security system, whereas women followed up were more likely to pay for their care with private funds. If education and payment status affect the percentage of women who obtain interval sterilizations, these results may not be representative of the whole sample. We return to this point below.

*Of these 155 women, three had said at the time of the first study that they were not sure if they had been sterilized. At follow-up, they said that they had definitely been sterilized. These women were therefore dropped from subsequent analysis.

†The Kolmogorov Smirnov test statistic was calculated for independent samples to test the homogeneity of distribution between the variables age, education and number of living children. The Chi-square test statistic was calculated to test differences with respect to payment status and delivery type.

Table 1. Characteristics of women planning sterilization by whether actually sterilized at time of hospitalization for delivery, December 1979–February 1980

Characteristic	Women sterilized (N = 226)	Women not sterilized		
		Total (252)*	Follow-up (152)	Not followed up (100)
Age				
20–24	12.7	20.4	18.4	23.5
25–34	65.8	63.2	61.2	66.3
≥35	21.5	16.4	20.4	10.2
Total	100.0	100.0	100.0	100.0
Payment status*				
Indigent	2.6	9.6	7.2	13.3
Public insurance	63.2	78.4	77.0	80.6
Private insurance or own funds	33.8	10.4	14.5	4.1
Unknown	0.4	1.6	1.3	2.0
Total	100.0	100.0	100.0	100.0
Education				
0–3	28.1	76.8	71.1	85.7
4	26.8	10.0	13.2	5.1
≥5	45.1	13.2	15.8	9.2
Total	100.0	100.0	100.0	100.0
Number of living children				
2	14.0	19.6	23.0	14.3
3	44.7	27.2	29.6	23.5
4–5	30.3	29.6	24.3	37.8
≥6	11.0	23.6	23.0	24.5
Total	100.0	100.0	100.0	100.0
Type of delivery				
Vaginal	3.1	86.0	81.9	89.8
Cesarean	96.9	14.0	18.1	10.2
Total	100.0	100.0	100.0	100.0
Average number of living children for women aged				
20–24	3.3	3.2	3.1	3.3
25–34	3.5	4.2	4.0	4.5
≥35	4.5	6.1	5.8	7.2
Total	3.7	4.3	4.2	4.5

*Three women were dropped from follow-up because they were actually sterilized postpartum.

Table 2. Percentage of women with postpartum and interval sterilizations by selected characteristics

Characteristic	Postpartum sterilization*	Interval sterilization†
Total	47.4 (481)	13.2 (152)
Age		
20–24	36.3 (80)	17.9 (28)
25–34	48.4 (310)	11.8 (93)
⩾35	53.8 (91)	12.9 (31)
Payment status		
Indigent	20.0 (30)	(11)
Public insurance	42.0 (343)	14.5 (117)
Private insurance or own funds	74.8 (103)	(12)
Unknown	(5)	(2)
Education		
0–3	33.3 (192)	13.9 (108)
4	47.7 (128)	10.0 (20)
⩾5	63.9 (161)	12.5 (24)
Number of living children		
2	39.0 (82)	8.6 (35)
3	59.6 (171)	11.1 (45)
4–5	47.9 (144)	13.5 (37)
⩾6	29.8 (84)	20.0 (35)

Note: Percentages not calculated for cells with fewer than 20 cases.
*Percentages are based on number of women planning sterilization at admission to hospital for delivery.
†Percentages are based on number of women planning sterilization but not sterilized postpartum and were located for follow-up.

RESULTS

Table 1 shows the characteristics of the women sterilized postpartum and those not sterilized postpartum. The latter group is further broken down into those followed up and those lost to follow-up.

The data show that, while the differences between women followed up and those unable to be located were small, there were important differences between the women not sterilized and the women sterilized at time of delivery*. Women who were sterilized postpartum were younger and had fewer children than women not sterilized. Sterilized women were better educated and more likely to have paid for their care with their own funds or with private insurance than were women not sterilized. Lastly, women who were sterilized were far more likely to have had cesarean deliveries than women who were not sterilized.

Only 20 (13.2%) of the 152 women followed-up were sterilized in the year following delivery (Table 2). Women who had only two children were less likely to be sterilized than women who had three or more and women with six or more children had the highest probability of getting sterilized. There was little variation in the percentage of women sterilized associated with age and education. The impact of payment status was not investigated because there were too few cases in which women paid for their care other than through the social security system. With education having no effect on sterilization, however, any bias in the results obtained because of high loss to follow-up is probably not large.

The reason women gave for not having been sterilized at delivery was an important factor influencing whether they subsequently got sterilized. Of the 27 women who reported that their doctor said that they were too young or should have more children before they were sterilized, none were sterilized. Among the 19 women who said that they had not discussed sterilization with a doctor, only 2 were sterilized. In contrast, of the 47 women who said that they were not sterilized because they had a normal delivery, 19.1% were sterilized.

Many women who were not sterilized postpartum did make some attempt to obtain an interval sterilization. Of the 132 women not sterilized, 41 or 31% had discussed sterilization with a doctor. Over half of these 41 women reported that either the doctor would not sterilize them (32%) or that sterilization was too expensive (22%).

Of the 132 women not sterilized in the interval period, almost three-quarters said that they were still interested in being sterilized. Many women who said

*The Kolmogorov-Smirnov test statistic was calculated to test distributional differences between age, education and number of living children. The Chi-square test statistic was calculated to test differences in payment status and delivery type. Differences between all the variables were highly significant ($P \leq 0.01$).

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Table 3. Percentage of women sterilized postpartum and in the interval period by number of living children and age

Characteristic	Total	Age ⩽29	Age ⩾30
Postpartum			
Living children			
⩽3	53.0 (253)	47.7 (149)	60.6 (104)
⩾4	41.2 (228)	31.3 (96)	48.5 (132)
Total	47.4 (481)	41.2 (245)	53.8 (236)
Interval Period			
Living children			
⩽3	10.0 (80)	8.2 (49)	12.9 (31)
⩾4	16.7 (72)	22.2 (36)	11.1 (36)
Total	13.2 (152)	14.1 (85)	11.9 (67)

that they were interested had not yet spoken to a doctor concerning sterilization. In fact, of the 97 women who said that they were still interested in sterilization, 62% had not spoken to a doctor concerning sterilization.

Of the 152 women who were not sterilized postpartum, 28 are currently pregnant or have been pregnant in the succeeding year. Of these 28 women, 75% are currently pregnant, 14% had a live birth and 7% reported that the pregnancy ended in an induced abortion and 4% in a spontaneous abortion. Only two women reported that they wanted the pregnancy. These two women may have changed their minds regarding their desire for additional children or may have been rationalizing an undesired pregnancy. Women who had been or were currently pregnant were more likely to have discussed sterilization with a doctor (57%) than women who had not had another pregnancy (36%). Among women not sterilized, women with additional pregnancies were much more likely to report that they were still interested in sterilization (93%) than were women who had not been pregnant (69%).

Of the 132 women not sterilized, 39% were not contracepting at the time of follow-up, 36% were using orals, 8% condoms and 7% rhythm. Of the 52 women not contracepting, 34.6% were pregnant, leaving 34 (25.8%) of the 132 nonsterilized women unprotected against the risk of pregnancy.

DISCUSSION

Results of this study show that only a small percentage of the women denied access to postpartum sterilization had arranged for an interval procedure. Though some women had changed their minds concerning the desire for sterilization, the percentage of women sterilized is still extremely low (17%).

If women denied postpartum sterilization had adequate protection against the risks of pregnancy, then the low sterilization rate among these women would be a far less significant problem. However, the high pregnancy rate together with the high percentage of women not contracepting shows that other methods of contraception are not being used as effective substitutes for sterilization.

Many women, however, who said that they were still interested in sterilization had not spoken to a doctor concerning obtaining a sterilization. A much higher percentage of women (83.6%) asked a doctor to sterilize them when hospitalized for delivery than consulted a doctor subsequent to that hospitalization (40.1%). In fact, of women who did not speak to a doctor about sterilization in the past year, over 40% cited problems of child care or "haven't had time to talk to a doctor or haven't spoken to a doctor" as reasons for not getting sterilized. Thus it appears that the lack of easy access to a doctor among these women was a barrier to their getting sterilized.

As a consequence of the Brazilian policy of allowing easy access to sterilization only for women with a history of cesarean deliveries, most poor, high parity women find it difficult to obtain postpartum sterilizations. Thus, the percentage of women sterilized postpartum, when controlled for age, is higher for women with three or fewer children than for women with four or more children (Table 3).

Among younger women desiring interval sterilizations, the percentage of women sterilized was higher for those with four or more children than for those with three or fewer. However, among older women (30+ years), the number of women sterilized was not dependent on the number of living children. These findings indicate that when 'medical factors' dominate, as they do in postpartum sterilizations in determining who gets sterilized, the lower parity, higher income women get sterilized. This is because these women are the most likely to pay for their care with private insurance or private funds and, therefore, to have cesarean deliveries and postpartum sterilizations. When 'medical factors' no longer play a role as during interval sterilizations, either the number of living children is not significant in affecting sterilization or it is the high parity and not the low parity women who get sterilized.

The low rates of sterilization among women denied postpartum sterilization show that these women are unable to make up for the 'bias' in access to postpartum sterilization by obtaining interval sterilizations. Instead, many find themselves faced with unwanted pregnancies.

CONCLUSIONS AND POLICY IMPLICATIONS

To allow poorer women to more easily obtain sterilization, policies to improve access to both post-

partum and interval sterilizations should be encouraged. Eliminating the 'requirement' of a cesarean delivery for a postpartum sterilization would be insufficient unless institutional arrangements for payment of care are also changed*. Age-parity requirements for interval sterilizations could be reduced or eliminated. In addition, hospital personnel could, subsequent to delivery, help to arrange appointments for women to discuss sterilization with a doctor and, if qualified, to arrange for them to be sterilized at the hospital. As almost all women who were sterilized returned to the same hospital for sterilization, such a policy could increase the number of interval procedures. However, the difficulties of arranging for substitute child care and for transportation will always make an interval procedure a less satisfactory alternative to a postpartum procedure.

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*Medical personnel are available to perform additional sterilizations not concomitant with cesarean deliveries, as about half of the *vaginal* deliveries are already attended by obstetricians/gynecologists.