Changes in family structure and regret following tubal sterilization

Mudanças na estrutura familiar e arrependimento da laqueadura tubária

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Abstract

Tubal sterilization is one of the contraceptive methods whose use has increased the most in Brazil, but a growing number of women have expressed regret after the procedure. A case-control study was conducted at the Centro Integrado de Saúde Amaury de Medeiros (CISAM), Recife, Pernambuco, Brazil, in 1997 to investigate the association between changes in family structure and request for or submittal to surgical reversal of tubal sterilization, comparing 304 sterilized women who had requested or submitted to reversal of tubal sterilization and 304 women who were also sterilized but had not requested, had not submitted to, and who did not wish to submit to reversal. The simple and adjusted odds ratios were estimated using logistic regression. The results of the current study showed that death of children, partners without children prior to the current union, and partner change after tubal sterilization were associated with the request for or submittal to reversal of tubal sterilization. More strict criteria are suggested in the indication of tubal sterilization, including an in-depth profile of the woman requesting tubal sterilization and identification of risk factors for future regret.

Sterilization Reversal; Tubal Sterilization; Women's Health

Introduction

Family planning means to decide the time and number of children wanted and involves individual and family aspirations and wishes, socioeconomic factors, and access to scientifically tested and approved contraceptive methods [1,2]. Prevention of unwanted pregnancy takes place within a pattern of social relations based on gender inequalities and has historically been considered the woman's exclusive responsibility [3,4].

Women's misinformation, lack of contraceptive methods in public healthcare services, physicians' power to intervene in the patient's body and health, and the lack of technical training for health professionals to deal with family planning all interfere in women's autonomy when choosing a contraceptive method [5,6,7]. Such distortions in family planning are reflected in high tubal sterilization rates, especially in women from developing countries. In Brazil, contraception has concentrated on the use of contraceptive pills and tubal sterilization [1,7], and the country now has one of the highest female sterilization rates in the world [8,9,10]. Although tubal sterilization has been illegal in Brazil until 1997, it has been a common practice in the private sector and public healthcare system for many years [11], and various authors [11,12] have denounced the high number of unnecessary cesareans used as an opportunity to perform tubal sterilization. According to a

national study conducted by the Sociedade Civil Bem-estar Familiar no Brasil (BEMFAM) in 1996 [13], approximately 53.0% of Brazilian women from 15 to 49 years of age who were married or in stable unions and using some form of contraception were sterilized. The age at which women seek sterilization has also decreased, and a large proportion of such surgeries are performed in women less than 25 years of age [2,14].

An increasing number of women have demonstrated regret after having submitted to tubal sterilization. Regret rates vary from 0.1% to 50.0% of all women following tubal sterilization [15,16,17,18,19,20,21]. Although the term "regret" is commonly associated with a feeling of sadness, sorrow, pain, affliction, hurt, dissatisfaction, and anxiety, some authors have considered as "clearly regretful" only the women who manifest their desire and intent to submit to surgical reversal of tubal sterilization [9].

The literature has shown an association between regret after tubal sterilization and the death of children, a new marriage, changes in socioeconomic status, the woman's age at the time of tubal sterilization, lack of information on surgical sterilization (including the issue of irreversibility), and the time the surgery is performed in relation to delivery [9,21,22,23,24], making the request for surgical reversal of tubal sterilization a complex phenomenon, difficult to study in isolation.

According to Nervo et al. [20], it is important to know the profile of the woman requesting tubal sterilization in order to decrease the odds of subsequent regret, since only 30.0 to 70.0% of the women who request reversal of tubal sterilization are actual surgical candidates for this subsequent procedure.

The current study investigated the association between changes in family structure and the request for (or performing of) surgical reversal of tubal sterilization in the reproductive health outpatient clinic at the Centro Integrado de Saúde Amaury de Medeiros (CISAM), Recife, Pernambuco, Brazil.

Material and methods

Study area

CISAM is a hospital complex at the University of Pernambuco, consisting of a maternity hospital and 48 primary and specialized healthcare clinics. The reproductive health outpatient clinic receives approximately 60 women per week, and post-tubal sterilization secondary sterility accounted for 50.0% of the consultations in 1997.

Research design and sample

A case-control study was conducted in 1997. The sample size was calculated as 287 cases and 287 controls with a proportion of 1:1 and increased to 304 cases and 304 controls, considering the possibility of a 5.0% non-response rate. The variable chosen for calculating the sample was "death of child(ren)", since as compared to the others it was the variable that required more women, with a frequency among controls of 8.9%, odds ratio (OR) = 2.1, alpha error = 0.05, and beta error = 0.20.

Definition and selection of cases and controls

The group of cases consisted of 304 surgically sterilized women attending the human reproductive health outpatient clinic at CISAM and who requested or had submitted to reversal of tubal sterilization during the year 1997. The control group, with 304 women, also consisted of surgically sterilized women attending the gynecology clinics at CISAM but who had not requested, submitted to, or expressed intent to request this surgery, even though they were aware it existed at CISAM. Therefore, the inclusion criteria for cases were: having been sterilized and having come to the human reproductive health outpatient clinic at CISAM to request surgical reversal of tubal sterilization in 1997 or having already submitted to the latter surgery during that same year and at the same service. Inclusion criteria for controls were: prior sterilization, attendance at the gynecology clinics at CISAM in 1997, being aware of the human reproductive health outpatient clinic at CISAM, and not having submitted to or expressed the intent to request surgical reversal of tubal sterilization.

Data collection

Data were collected using a questionnaire with pre-coded questions, administered exclusively by the principal investigator. Two hundred of the 304 cases were recruited in the waiting room of the human reproductive health clinic. One hundred and four women who had submitted to surgical reversal of tubal sterilization

at the same service and during the same year were interviewed by telephone. The control group was recruited in the same waiting room as the cases (gynecology outpatient clinic, CISAM) and during the same period. There were no refusals to participate in the study.

Definition of variables

Changes in family structure were evaluated based on the following variables: death of child (ren), partners with child(ren) prior to current union, and partner change. Death of child(ren) was defined as the death of some child of the woman or partner from the time of tubal sterilization until the moment of the interview and was categorized as yes or no. Partner with child (ren) prior to the current union was defined as whether the partner had a child or children prior to the current union, and partner change was defined as whether the current partner was the same as when the tubal sterilization was performed.

According to the literature reviewed in this study, the co-variables associated with requesting or submitting to reversal of tubal sterilization were:

Age at the time of tubal sterilization: woman's age in complete years at the time of tubal sterilization, categorized as: 13-19; 20-24; 25-29, and ≥ 30.

Year in which tubal sterilization was performed, categorized as: 1969/1979; 1980/1989, and 1990/1995.

Reasons for tubal sterilization: the main reasons leading the woman to submit to tubal sterilization, categorized as: poor relationship with partner; children (number, and health problems with); and other (complicated or high-risk pregnancy; three or more cesareans; influenced by friends or politicians; not knowing that she was being subjected to tubal sterilization; work demands, etc.).

Tubal sterilization decision-maker, defined as the person that most contributed to the decision, was categorized as: the woman herself, or others (husband/partner; mother; mother-in-law; friend; physician; boss or supervisor).

Time when tubal sterilization was performed in relation to the last delivery, categorized as: trans-cesarean up to 45th day post-partum; more than 45 days post-partum.

Whether information on the irreversibility of tubal sterilization was transmitted to the woman by the health professional at the moment of request for tubal sterilization.

Knowledge of contraceptive methods obtained after tubal sterilization was performed: acquisition of knowledge on contraceptive methods between the time the tubal sterilization was performed and the request for reversal of the surgery.

Data processing and analysis

The questionnaires were keyed in to Epi Info 6.04 and analyzed with Stata 4.0 for DOS. We investigated the association between requesting or submitting to reversal of tubal sterilization and death of child(ren), existence of current partner's child(ren) from a previous union, partner change, and the co-variables, estimating the simple and adjusted OR and the respective confidence intervals. The statistical significance was also evaluated by the χ^2 test and p values. Logistic regression was used to analyze the independence of the association of each variable pertaining to the change in family structure and requesting or submitting to reversal of tubal sterilization. The co-variables included in the model were those described in the literature as potential confounders and which in the current study were associated with requesting or submitting to reversal of tubal sterilization and with changes in family structure.

The study complied with the ethical principles governing research involving human beings, and the project received prior approval by a research ethics committee. Using free and informed consent, it was sought approval by the women, who were initially informed on the nature of the study and its objectives, methods, and potential benefits. Meanwhile, the privacy and confidentiality of the information were guaranteed.

Results

Table 1 shows the sample distribution according to several demographic and socioeconomic characteristics. The majority of the women were 30 years or older (75.8%). More than half had finished primary school (61.2%), and 61.5% performed no paid work. These variables did not show any statistically significant association with requesting or submitting to reversal of tubal sterilization.

Women who had submitted to tubal sterilization under 30 years of age, during the 1980s, due to problems in their relationship with the partner, for whom the surgery was performed based on someone else's decision, in whom sterilization was performed up to the 45th day postpartum (including the trans-cesarean period), without having received information on

Table 1

Demographic and socioeconomic characteristics of women who did or did not request or submit to reversal of tubal sterilization at the Centro Integrado de Saúde Amaury de Medeiros, Recife, Pernambuco, Brazil, 1997.

Variables	Reversal of tubal sterilization		No reversal of tubal sterilization		Total		OR (95%CI)
	n	%	n	%	n	%	
Age (years)							
20-24	22	7.2	13	4.3	35	5.8	1.87 (0.9-3.8)
25-29	63	20.7	49	16.1	112	18.4	1.42 (0.9-2.1)
≥ 30	219	72.1	242	79.6	461	75.8	1.00
Schooling (years)							
0-10	115	37.8	121	39.8	236	38.8	0.92 (0.7-1.3)
≥ 11	189	62.2	183	60.2	372	61.2	1.00
Woman's paid work							
Yes	125	41.1	109	35.9	234	38.5	1.25 (0.9-1.8)
No	179	58.9	195	64.1	374	61.5	1.00

the surgical procedure's irreversibility, and who acquired knowledge on contraceptive methods after tubal sterilization showed an increased probability of having requested or submitted to reversal of tubal sterilization (Table 2).

All the co-variables proved to be potential confounders, since they were associated with the variables related to changes in the family structure (Table 3) and, independently of the latter, with requesting or submitting to reversal of tubal sterilization.

Univariate analysis of the association between death of child(ren) after tubal sterilization and requesting or submitting to reversal of tubal sterilization, shown in Table 4, was stratified according to the variable "partner with child(ren) from a previous union". While women whose partners had a child or children from a previous union requested or submitted to the procedure approximately four times more frequently than women without death of child(ren) (OR = 4.23), the differences among women whose partners did not have children from previous unions were not statistically significant (OR= 1.47; 95%CI: 0.8-2.7). Death of child(ren) after tubal sterilization remained associated with request for/submittal to reversal of tubal sterilization even after adjustment for partner change, year in which the tubal sterilization was performed, time when tubal sterilization was performed in relation to the last delivery, and knowledge of contraceptive methods acquired after tubal sterilization was performed. However the test for interaction of the variable "partner with child(ren) with from previous union" was only statistically significant (LRS = 4.11; 1 degree of freedom; p = 0.04) in the univariate analysis.

Table 5 shows the association between the variable "partner with child(ren) from previous union" and requesting or submitting to reversal of tubal sterilization, stratified by death of child(ren) after tubal sterilization. The readjusted OR suggest that the variable had its effect on request for/submittal to reversal of tubal sterilization modified by death of child (ren) after tubal sterilization, whereby the excess reversal of tubal sterilization in women with partners without children prior to the current union appears exclusively in women who experienced death of child(ren) (OR = 2.13; 95%CI: 1.4-3.2). Once again, the interaction test was only statistically significant (LRS = 4.11; 1 degree of freedom; p = 0.04) in the univariate analysis.

Women who changed partners after tubal sterilization increased their chances of requesting or submitting to reversal of tubal sterilization by 40 times (95%CI: 25.1-64.5) as compared to those who had not changed partners (Table 6). The variable remained associated with reversal of tubal sterilization after adjustment for death of child(ren) and partner with child(ren) from previous union ($p < 0.0001$) and by year when the tubal sterilization was performed, reasons for tubal sterilization, the person making the decision, and information

Table 2

Characteristics of women who did or did not request or submit to reversal of tubal sterilization at the Centro Integrado de Saúde Amaury de Medeiros, Recife, Pernambuco, Brazil, 1997, in relation to tubal sterilization.

Variables	Reversal of tubal sterilization		No reversal of tubal sterilization		Total		OR (95%CI)
	n	%	n	%	n	%	
Age at tubal sterilization							
13-19	59	19.4	15	5.0	74	12.3	49.45 (16.0-136.6)
20-24	166	54.6	69	22.8	235	38.6	30.24 (12.0-74.3)
25-29	72	23.7	132	43.5	204	33.5	6.86 (2.7-17.0)
≥ 30	7	2.3	88	28.7	95	15.6	1.00
Year of tubal sterilization							
1969-1979	20	6.6	25	8.2	45	7.4	1.04 (0.50-2.0)
1980-1989	174	57.3	136	44.7	310	51.0	1.66 (1.2-2.3)
1990-1995	110	36.1	143	47.1	253	41.6	1.00
Reasons for tubal sterilization							
Bad relationship with partner	176	57.9	26	8.6	202	33.2	12.25 (5.9-25.5)
Children	107	35.2	240	78.9	347	57.1	0.81 (0.4-1.5)
Other	21	6.9	38	12.5	59	9.7	1.00
Tubal sterilization decision-maker							
Herself	81	26.6	220	72.4	301	49.5	1.00
Others	223	73.4	84	27.6	307	50.5	7.30 (5.0-10.6)
Time of tubal sterilization							
Trans-cesarean up to 45th day postpartum	201	66.3	169	55.6	370	61.0	1.57 (1.1-2.2)
More than 45 days postpartum	102	33.7	135	44.4	237	39.0	1.00
Information from health professionals on tubal sterilization*							
Yes	105	34.7	221	72.9	326	53.8	1.00
No	198	65.3	82	27.1	280	46.2	5.08 (3.5-7.3)
Contraceptive knowledge acquired after tubal sterilization**							
Yes	206	68.0	65	21.4	271	44.6	6.50 (4.5-9.4)
No	97	33.0	239	78.6	336	55.4	1.00

* 2 missing values.
** 1 missing value.

about the procedure and knowledge of contraceptive methods after having tubal sterilization performed ($p < 0.0001$).

Discussion

The results of this study indicate that after controlling for confounders, death of children, partners without children prior to the current union, and partner change after tubal sterilization showed a statistically significant association with requesting or submitting to reversal of tubal sterilization. It is thus necessary to investigate certain situations which may disqualify the variables' explanatory potential. In synthesis, the hypothetical existence of bias or confounders in this investigation would compromise the role of said variables as determinant factors in requesting or submitting to reversal of tubal sterilization. These possibilities should thus be assessed.

Table 3

Association between woman's characteristics in relation to tubal sterilization and partner with children prior to current union, death of child(ren), and partner change after tubal sterilization.

Variables	Death of child(ren)		Partner with previous child(ren)		Partner change	
	No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)
Age at tubal sterilization						
13-19	11.9	13.9	13.9	8.7	17.5	7.0
20-24	39.0	36.7	39.2	40.7	49.8	28.6
25-29	32.5	40.6	33.7	29.7	26.1	39.4
≥ 30	16.6	8.8	13.2	20.9	6.6	25.0
P		0.23		0.05		< 0.0001
Year of tubal sterilization						
1969-1979	6.1	16.5	7.2	8.1	6.9	7.7
1980-1989	51.6	46.8	50.7	48.8	56.8	43.2
1990-1995	42.3	36.7	42.1	43.0	36.3	49.1
p		< 0.001		0.88		< 0.001
Reasons for tubal sterilization						
Bad relationship with partner	32.5	38.0	34.9	30.3	56.4	9.1
Children	58.4	48.1	55.0	61.6	36.3	78.4
Other	9.1	13.9	10.1	8.1	7.3	12.5
p		0.17		0.33		< 0.0001
Tubal sterilization decision-maker						
Herself	50.7	41.8	46.4	55.8	31.3	67.2
Others	49.3	58.2	53.6	44.2	68.7	32.8
p		0.14		0.04		< 0.0001
Time of tubal sterilization						
Trans-cesarean up to 45th day postpartum	59.6	70.9	61.1	60.6	61.5	59.9
More than 45 days postpartum	40.4	29.1	38.9	39.4	38.5	40.1
p		0.05		0.91		0.71
Information from health professionals about tubal sterilization*						
Not informed	45.3	51.8	49.0	41.9	62.9	29.7
Informed	54.7	48.1	51.0	58.1	37.1	70.3
p		0.28		0.11		< 0.0001
Contraceptive knowledge acquired after tubal sterilization**						
No	55.2	56.4	53.0	58.1	36.8	73.9
Yes	44.8	43.6	47.0	41.9	63.2	26.1
p		0.84		0.26		< 0.0001

* 2 missing values.
** 1 missing value.

Table 4

Death of child(ren) after tubal sterilization in women who did or did not request or submit to reversal of tubal sterilization at the Centro Integrado de Saúde Amaury de Medeiros, Recife, Pernambuco, Brazil, in 1997, stratified according to partner with child(ren) prior to previous union.

Death of child(ren)	Reversal of tubal sterilization		No reversal of tubal sterilization		OR (95%CI)	Adjusted OR* (95%CI)	Adjusted OR** (95%CI)
	n	%	n	%			
Partner with children							
No	52	72.2	92	92.0	1.00	1.00	1.00
Yes	20	27.8	8	8.0	4.23 (1.8-10.7)	6.01 (1.6-23.0)	7.99 (1.8-34.7)
P					0.001	0.005	0.003
Partner without children							
No	32	13.8	18	9.8			
Yes	200	86.2	166	90.2	1.47 (0.8-2.7)	3.54 (1.5-8.1)	5.92 (2.1-16.4)
P					0.22	0.003	< 0.001
Interaction test (LRS)					0.04	0.44	0.45

* Adjusted for partner change.
** Adjusted for partner change, year of tubal sterilization, time of tubal sterilization in relation to last delivery, and knowledge on contraceptive methods acquired after tubal sterilization.

Table 5

Partner with child(ren) prior to current union in women who did or did not request or submit to reversal of tubal sterilization at Centro Integrado Saúde Amaury de Medeiros, Recife, Pernambuco, Brazil, 1997, stratified according to death of child(ren) after tubal sterilization.

Partner with child(ren)*	Reversal of tubal sterilization		No reversal of tubal sterilization		OR (95%CI)	Adjusted OR** (95%CI)	Adjusted OR*** (95%CI)
	n	%	n	%			
Death of child(ren)							
No	200	79.4	166	64.3	2.13 (1.4-3.2)	3.88 (2.1-7.3)	3.48 (1.7-6.9)
Yes	52	20.6	92	35.7	1.00	1.00	1.00
P					< 0.0001	< 0.0001	< 0.001
No death of child(ren)							
No	32	61.5	18	69.2	0.71 (0.3-1.9)	1.57 (0.4-6.0)	1.11 (0.3-4.7)
Yes	20	38.5	8	30.8	1.00	1.00	1.00
P					0.50	0.49	0.88
Interaction test (LRS)					0.04	0.44	0.51

* 20 women did not know whether partners had children prior to the current union.
** Adjusted for partner change
*** Adjusted for partner change, age at time of tubal sterilization, tubal sterilization decision-maker, and time of tubal sterilization in relation to last delivery.

Table 6

Partner change after tubal sterilization in women who did or did not request or submit to reversal of tubal sterilization at the Centro Integrado de Saúde Amaury de Medeiros, Recife, Pernambuco, Brazil, 1997.

Partner change	Reversal of tubal sterilization		No reversal of tubal sterilization		OR (95%CI)	Adjusted OR* (95%CI)	Adjusted OR** (95%CI)
	n	%	n	%			
No	42	13.8	245	86.6	1.00	1.00	1.00
Yes	262	86.2	38	13.4	40.22 (25.1-64.5)	55.72 (32.5-95.4)	32.49 (16.2-65.0)
p					< 0.0001	< 0.0001	< 0.0001

* Adjusted by death of child(ren) and partner with child(ren) prior to current union.
** Adjusted for the above variable and for year of tubal sterilization, reasons for tubal sterilization, decision, information on the surgery, and knowledge about contraceptive methods after tubal sterilization.

Selection and recall bias are the two greatest problems for interpreting results in case-control studies.

The dual form of capturing cases (in person and by telephone) adopted by Wilcox et al. [25] was used here with the objective of reaching a sufficient number of cases in a short period of time. Analysis of the association between the variables death of child(ren) after tubal sterilization and partner with child(ren) from a previous union and requesting or submitting to reversal of tubal sterilization showed that the odds ratios adjusted for the other variables pertaining to change in family structure were slightly greater, but in the same direction, in the women who had been interviewed personally (OR = 4.22 and 3.34, respectively) as compared to those interviewed by telephone (OR = 3.49 and 2.55, respectively).

There may also have been a selection bias in the controls in the few times in which (having been informed at the time of the interview on the possibility of becoming pregnant again and of the existence of a service for reversal of tubal sterilization at CISAM) the woman had to respond whether she wanted the surgery or not. The impact of this new information may have interfered in women's responses. Worthy of reflection is the fact that no woman approached through the survey either by telephone or personally refused to participate in the study, which is unusual. This situation may be explained by the emotional aspects involved in the desire for a new pregnancy or by the positive physician-patient relationship at CISAM, which tended to facilitate women's collaboration.

In relation to confounding, it is important to highlight that the association between the variables related to changes in family structure and requesting or submitting to reversal of tubal sterilization remained statistically significant, even after controlling the other selected variables in the logistic regression.

The association between death of child(ren) and requesting or submitting to surgical reversal of tubal sterilization is consistent with other studies [18,22,26,27]. Hapugalle et al. [27] found that 92.1% of women requesting reversal of tubal sterilization had lost children, and Khuda et al. [28] found that 82.0% of the women in their study who had lost a child after tubal sterilization subsequently expressed regret over having submitted to the surgery.

The results of this study also indicate that the chances of requesting reversal of tubal sterilization are greater among women whose partners do not have children from a previous union, probably due to the pressure to have children now, generating a feeling of regret in the sterilized woman.

The majority of women who requested or had submitted to reversal of tubal sterilization had changed partners after surgical sterilization. A new marriage is one of the important determinant factors in regret over tubal sterilization. Women who remarry want to become pregnant and have children with their new partners as a way of consolidating the new marriage or expressing satisfaction and gratitude for being loved [5,18,20,26,29].

The Brazilian National Congress recently passed *Act 9,263* (*Lei n. 9263*. Diário Oficial da União 1996; 12 jan) on family planning, regulated by Ministry of Health Ruling 144 (*Portaria n. 144*. Diário Oficial da União 1997; 20 nov), providing the legal basis for female and male sterilization as a reproductive right, legalizing and regulating the practice. The law provides that men and women can voluntarily request surgical sterilization, as long as they are at least 25 years old or have two children and comply with a minimum waiting period of sixty days

between request for the procedure and the actual surgery. In addition, the law prohibits sterilization during delivery, after an abortion, or in the 41 days following childbirth.

Reproductive choices involve sensitive and complex aspects, and in order for women to make their decision, health services and professionals should guarantee their access to all contraceptive methods and information on their risks and benefits [30], evaluate their profile and reasons for the request, and counsel them on family planning. Conscientious choice of tubal sterilization would help decrease the number of requests for reversal of the surgery, which leads to unnecessary problems and iatrogenic complications and places a burden on public health services.

Resumo

A laqueadura tubária foi um dos métodos contraceptivos cuja adoção mais cresceu no Brasil, porém, um número cada vez maior de mulheres tem-se mostrado arrependida da cirurgia. Um estudo do tipo caso controle foi conduzido no Centro Integrado de Saúde Amaury de Medeiros (CISAM), Recife, Pernambuco, Brasil, em 1997 para investigar a associação das mudanças na estrutura familiar com a solicitação ou realização da cirurgia de reversão de laqueadura tubária, comparando 304 mulheres laqueadas que solicitaram/realizaram a reversão de laqueadura tubária, com 304 mulheres também laqueadas que não solicitaram, não se submeteram e nem desejavam esta cirurgia. Estimaram-se os odds ratio *simples e ajustados, utilizando-se regressão logística. Os resultados do presente estudo mostraram que morte de filhos, parceiros sem filhos anteriores à união atual e a mudança de parceiro após a laqueadura tubária estiveram associados com a solicitação ou realização de reversão da laqueadura tubária. Sugere-se maior critério na indicação da laqueadura tubária, devendo-se conhecer os motivos e o perfil da mulher que está solicitando esta cirurgia e identificar os riscos de arrependimento futuro.*

Reversão da Esterilização; Esterilização Tubária; Saúde da Mulher

Contributors

K. M. M. Machado participated in all phases of the study, including the original idea, design, data analysis and interpretation, and drafting of the manuscript. A. B. Ludermir was responsible for the statistical analysis and interpretation of the results, and participated in drafting the manuscript. A. M. Costa participated in the choice of the theme and collaborated in the interpretation of the results and adjustments in the article.

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