

A SURVEY OF HEALTH AND DEMOGRAPHIC ASPECTS OF REPORTED FEMALE STERILIZATIONS IN FOUR HEALTH CENTERS OF SHIZUOKA PREFECTURE, JAPAN

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SINCE the passage of the Eugenic Protection Law in 1948 the number of sterilization operations has increased year by year. The number officially reported was 11,403 in 1950, 16,233 in 1951, 22,424 in 1952, and 32,552 in 1953.¹ The actual number of operations performed is difficult to estimate; it may amount to five or ten times the reported number.

The female sterilizations already performed have been sufficient to have a marked effect on birth in future years. The number of operations performed in the years from 1949 to 1953 is sufficient to reduce the number of women in the child-bearing age in the year 1960 by 71,881.² Assuming that the average age at the time of sterilization was approximately 30 and that the future fertility would have followed the current trends among Japanese women, the loss of future births from the 72 thousand women would be about 140 thousand. If we assume that actual sterilizations are five times the reported number, the loss of fertile women by 1960 would amount to about 360 thousand, the loss of anticipated births 700 thousand. If actual

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¹ Practically all of these operations, 98 to 99 per cent of the total, are performed on females.

² The computations were made on the assumption that the age distributions of women found in the present study were applicable to all Japan.

sterilizations are ten times the reported number, the losses would amount to 719 thousand for fertile women and 1.4 million for births. These, it should be noted, are the anticipated consequences only of the sterilizations that have already occurred between 1949 and 1953. Since sterilizations may well continue from 1954 to 1960, total reductions in live births associated with the sterilization of women may assume major proportions by the year 1960.

THE PRESENT STUDY

Sterilizations, as induced abortions, are performed in accordance with the provisions of the Eugenic Protection Law of 1948. According to this law as amended through May, 1954, there are three categories of sterilizations: (1) Compulsory sterilization performed for psychiatric and eugenic reasons (Article 4); (2) sterilization performed on patients with non-hereditary mental diseases or feeble-mindedness (Article 12); (3) sterilization performed by a physician designated under the Law, with the consent of the person in question and the spouse, in cases where the person in question, the spouse or a relative has a hereditary disease, mental disease or feeble-mindedness, or leprosy, or in cases where "pregnancy or delivery might endanger the life of the mother" or "the mother already has several children and the delivery might markedly injure the health of the mother" (Article 3). In practice, there have been few sterilizations performed under the first and second provisions. Compulsory sterilizations numbered only 273 in 1950, 480 in 1951, 560 in 1952, and 832 in 1953. The great majority of the sterilizations, 97 to 98 per cent of the total, have been performed under the third provision. And within this category most operations are performed for reasons relating to the health of the mother. It is widely believed that the real reasons are socio-economic. In Japan today, sterilizations, as abortions, are performed as a means of family limitation. As between the two means, it is apparent that sterilization is the more definitive means.

The increasing importance of the performance of sterilization and the almost complete absence of any information beyond the reports collected by the Government led to the decision to make a field study. In order to secure some comparability in results, it was decided to make this initial study of sterilization in Shizuoka Prefecture where a field study of abortions had already been made.³

The planning for the survey was completed in April, 1953, and the personal interviews were made from June to September, 1953 in four areas in Shizuoka Prefecture—Shizuoka, Hamamatsu, Numazu and Yoshiwara Health Center Districts—with the cooperation of the Shizuoka Prefectural Health Department. The interviews were conducted by Drs. M. Muramatsu and S. Agata of the Department of Public Health Demography, Institute of Public Health.

The women included in the survey were those living in the four Health Center Districts who were reported as having had a sterilization operation performed between April 1, 1952 and March 31, 1953, under Article 3 of the Eugenic Protection Law (voluntary sterilization). Reported sterilization operations in these areas performed on women living outside the areas were excluded because of the difficulty of locating the women concerned. The average time required for each interview was 30 to 40 minutes. In general, the cooperation of the women was excellent. The total number of cases was 428, the final number of satisfactory returns 338, or 79 per cent. Unknown addresses and out-movement made it impossible to locate some women. The major obstacle was the fact that the Law did not specifically require a detailed address in the reporting of the operation. Most of the interviews were made in the homes, though some were made in the Health Center.

The chief reason for the choice of Shizuoka Prefecture was the interest of the Prefectural Health Department in sterilization and conception control and its willingness to cooperate in

³ The publications of the results of this study of abortions are cited in the bibliography.

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the study. The four Health Centers were located in cities between 30,000 and 250,000 in population as of 1950. Each Health Center served both the city and the surrounding rural area. Shizuoka Prefecture itself is slightly above the average among all prefectures of Japan with respect to economic conditions.

The following items were included in the questionnaire: (1) General information about socio-economic conditions in the family such as education of the parents, ability to live within income, etc.; (2) number of past pregnancies and their outcome; (3) number of living children and their sex; (4) health conditions before and after the operation; (5) circumstances under which the operation was performed and the cost; (6) practice of contraception prior to the operation.

CHARACTERISTICS OF THE HOUSEHOLDS

The proportion of husbands and wives who had some education beyond the elementary level was slightly higher in the sterilization study than in the abortion study. (Table 1.) Moreover, as compared with the abortion group, the economic

Table 1. Educational status of couples surveyed.

EDUCATIONAL STATUS	STERILIZATION STUDY				ABORTION STUDY	
	Husband		Wife		Husband	Wife
	Number	Per Cent	Number	Per Cent	Per Cent	Per Cent
Graduates from University or College	43	12.7	6	1.8	13.1	3.8
Graduates from Middle School	^a 98	29.1	^c 116	34.4	23.6	30.7
Graduates from Elementary School	196	58.2	215	63.8	63.8	65.5
TOTAL	^b 337	100.0	^d 337	100.0	100.0	100.0

^a Includes one husband who left middle school halfway.
^b There is one other husband who had no schooling.
^c Includes two wives who left middle school halfway.
^d There is one other wife whose record was not known.

STATUS OF HOUSEHOLD FINANCING	STERILIZATION STUDY		ABORTION STUDY
	Number	Per Cent	Per Cent
Surplus	74	22.0	8.8
Balance	172	51.0	48.0
Deficit	84	24.9	40.7
On Relief	7	2.1	2.5
TOTAL	1337	100.0	100.0

¹ There is one other household for which no information was available.

Table 2. Status of household financing.

status of the sterilization group was somewhat higher. It is difficult to measure this factor directly, for there was an improvement in the economic status of the national population between the dates of the two studies. An indirect measure is used here—the presence of surplus, balance, or deficit in the household financing. For the nation as a whole, this is related to economic status, the upper socio-economic groups tending to reveal surpluses, the lower groups, deficits. As the data of Table 2 show, the households of the sterilization group had far higher proportions of families with surpluses and far fewer with deficits than did those in the abortion study. This finding, together with that concerning educational status, indicates that in this area of Japan reported sterilizations tended to represent households of higher social and economic levels than re-

Table 3. Occupations of husbands at the time of the sterilization operation.

OCCUPATION	NUMBER	PER CENT
Public Service, Company Employees, Clerks	79	23.4
Commerce	63	18.6
Factory Workers	61	18.1
Agriculture, Fishing	46	13.6
General Service Occupations	43	12.7
Physicians, Teachers, Lawyers, Priests	22	6.5
Manufacturing Industries	17	5.0
Others	3	0.9
No Occupation	4	1.2

ported abortions. When the cost of sterilization and the time required for hospitalization are considered, this difference seems quite natural. It should be noted, however, that it cannot be taken to mean that it was women of the upper social and economic groups who preferred sterilization. Women from low income groups might wish sterilization but find the cost prohibitive.

As would be anticipated from the location of the Health Centers surveyed and the characteristics of the households, the husbands of the women who were sterilized were engaged primarily in occupations other than agriculture. (Table 3.) The proportion engaged in agriculture or fishing was approximately one-third that for men in Japan as a whole. On the other hand, service occupations and commerce were relatively 1.5 times more numerous than in Japan as a whole. The proportion of "white-collar" occupations was quite large. No one engaged in forestry or mining was included in the present survey.

THE DEMOGRAPHIC BASIS FOR STERILIZATION

The age distribution of the wives who had been sterilized is given in relation to that of their husbands in Table 4. There were rather significant differences in the age composition of the wives who had had sterilizations and those in the previous

Table 4. Ages of husbands and wives at the time of the sterilization of the wife.

HUSBAND									NOT STATED	TOTAL	PER CENT
WIFE	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59			
20-24	1	5	1	1						8	2.4
25-29		9	36	23	1		1			70	20.7
30-34			33	76	21	4		2		136	40.2
35-39				25	59	18	3	1	1	107	31.7
40-44				1	6	7	3			17	5.0
TOTAL	1	14	70	126	87	29	7	3	1	338	100.0
Per Cent	0.3	4.1	20.7	37.3	25.7	8.6	2.1	0.9	0.3	100.0	

study who had had abortions. The following percentages reveal the differences:

<i>Age of Wife</i>	<i>Sterilization Study</i>	<i>Abortion Study</i>
Below 30	23.1	31.6
30-34	40.2	28.1
35-39	31.7	26.7
40 and Above	5.0	13.6

In the group which had been sterilized, both the proportion of women who were under 30 years of age, and the proportion who were in their forties, were lower than in the group which had had an induced abortion. Wives aged 30 to 39 years comprised more than 70 per cent of those who had been sterilized. In the women in their thirties, the difference between these two groups was especially great in those aged 30 to 34.

The proportion of the sterilized women who had been married 5 to 9 or 10 to 14 years at the time of the sterilization operation was very high. The specific numbers of women by duration of marriage were as follows, periods of six months separation or more having been subtracted:

<i>Duration of Marriage Years</i>	<i>Number of Women</i>
0- 4	16
5- 9	144
10-14	119
15-19	42
20 or More	16
Unknown	1

The median duration of marriage was 10.4 years. This may be regarded as a different expression of the fact that women aged 30 to 39 years represented the highest proportion of those who had been sterilized.

The 338 women who were sterilized had had a total of 1,937 past pregnancies, including those existing at the time of the operation. The distribution of the women by the number of the pregnancies was as follows:

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<i>Number of Past Pregnancies</i>	<i>Number of Women</i>
1	4
2	9
3	27
4	57
5	65
6	59
7	64
8	24
9	16
10	6
11	2
12	4
13	1

Of the 1,937 past pregnancies, 590, or 30.5 per cent of the total, had been terminated by an induced abortion and 83, or 4.2 per cent of the total, had been terminated by natural abortion. Among the total of 338 women, only 40, or 11.8 per cent, had not become pregnant at least four times before being sterilized.

The average number of living children per woman was 3.4, of whom 1.8 were boys and 1.6 girls. Six of the 338 women had no living children, while 75, or 22.2 per cent of the total, had only one or two children. However, more than three-fourths had three or more living children. The distribution of the women by number of living children was as follows:

<i>Number of Living Children</i>	<i>Number of Women</i>
0	6
1	11
2	64
3	119
4	75
5	41
6	15
7	7

	MALE									
		0	1	2	3	4	5	6	7	TOTAL
FEMALE										
0		6	6	24	22	4	1	-	1	64
1		5	31	45	15	10	2	-	-	108
2		9	42	31	10	6	1	-	-	99
3		10	22	11	3	3	-	-	-	49
4		3	9	1	1	-	-	-	-	14
5		-	3	1	-	-	-	-	-	4
TOTAL		33	113	113	51	23	4	0	1	338

Table 5. Numbers of living children, by sex, at time of sterilization.

The combination by sex among the children living at the time of the sterilization are given in Table 5.

Unless there is an important health reason it is generally believed that it is when there are two, three or four children that a couple begins to devote serious consideration to the ultimate size of the family. It is also believed that families prefer male children, and that sterilization or abortion is less likely to occur when living children are wholly or predominantly female. It is interesting to see in our data in the two, three, and four child families those families with male children only outnumber those with female children only in each case. This tendency is particularly pronounced in families with two or three children. Thus, it appears that families with no male children are less apt to have a sterilization operation performed. However, a definite conclusion requires more elaborate analysis.

Among 332 women who had at least one living child at the time of the sterilization, the mean age of the youngest child was 3.4 years. Among 1,345 women interviewed in the abortion study referred to previously, who had at least one living child at the time of the induced abortion, the mean age was 2.5 years. The difference between these two figures is statistically significant.

PREVIOUS ATTEMPTS AT LIMITATION

It is usually assumed that the decision for sterilization requires strong resolution. Unlike the induced abortion, sterili-

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NUMBER OF INDUCED ABORTIONS	NUMBER OF WOMEN	PER CENT	CUMULATIVE PER CENT
No Induced Abortion	37	11.0	100.0
<i>Induced Abortions</i>			
1	134	39.6	89.0
2	93	27.5	49.4
3	46	13.6	21.9
4	15	4.4	8.3
5	9	2.7	3.9
6	3	0.9	1.2
7	0	0.0	0.3
8	0	0.0	0.3
9	1	0.3	0.3
TOTAL	338	100.0	

Table 6. Number of induced abortions.

zation is a permanent method of preventing pregnancy. Hence, the data on the relation between sterilization and previous abortion history is very significant. Of the total of 338 women, only 37, or 11 per cent, stated that they had never had an induced abortion. (Table 6.) The remaining 301 women, 89 per cent of the total, had had at least one induced abortion prior to sterilization (including the induced abortion performed at the time of the sterilization). The total number of induced abortions was 590, an average of 1.7 per woman in the total study group. Thus, the vast majority of women had sterilization after having had at least one induced abortion. The majority of these abortions seem to have been performed as a means of family limitation. The women themselves reported only 89 of the total of 590 abortions to have been performed unwillingly for health or social reasons. These facts indicate that sterilization is not sought immediately as a means of family limitation. Decision to have the operation usually was made only after undesirable experiences with induced abortion.

The fact that 90 per cent of the women had decided to have a sterilization operation performed only after having had an induced abortion at least once, also is evidence of the strength of the desire to limit family size. Another question of interest

is how many of the women had ever practiced contraception before sterilization. Of the total of 338 women, 176, or 52.1 per cent, answered that they had done so at one time or another.

The summarized results of detailed inquiry of these 176 women who had once practiced contraception are as follows:

1. *Number of living children.* Sixty-two women, 35.2 per cent, began to practice contraception when they had three living children, 46 or 26.1 per cent when they had two, and 34 or 19.3 per cent when they had four.

2. *Contraception failures.* Of the 176 women, only 17 (9.7 per cent) had never become pregnant because of failure in contraception; the remaining 159 had experienced failure at least once.

3. *Method.* The most frequent was the condom (alone or with jelly) used by 48 (27.3 per cent). Then follow condom plus safe period—24 (13.6 per cent), safe period alone (abstinence during the fertile period)—21 (11.9 per cent), jelly alone—15 (8.5 per cent), vaginal diaphragm (alone or with jelly)—11 (6.3 per cent), withdrawal—10 (5.7 per cent), and the remaining 47 (26.7 per cent) were other methods used alone or in combination.

4. *Satisfaction with contraception.* The women's answers to the question as to whether or not they were generally satisfied with the methods showed that 150 (85.2 per cent) found them unsatisfactory. The most important reasons were the objection of the husband (54 cases) and the lack of reliability of the methods used (53 cases).

In summary, 89 per cent of the women who were sterilized had had at least one induced abortion, and 52 per cent had practiced contraception at some time prior to the sterilization. Among the contraceptors, the method most frequently employed was condom alone or in combination with other methods (72 cases, or about 40 per cent). In many instances, couples were not satisfied with the methods they used, and there were many failures. These results should be interpreted cautiously, however. The study group may have been selected with reference to failure at contraception. No data were se-

cured on regularity of use. The data merely indicate that these women were acquainted with some method of contraception and had been willing to try it. In many cases they resorted to sterilization only after accumulations of contraception failures.

It is of interest to determine the chronological relation between abortion and contraception among those women who had practiced contraception before the sterilization. In the group of 176 such women, 137, or 77.8 per cent, had never practiced contraception prior to the first induced abortion. Of the total study group of 338 women, only half had ever practiced contraception, but among those who made attempts at family limitation more than three-fourths attempted the practice of contraception before they resorted to abortion. Contraception was generally unsuccessful among these women, so they sought their solutions in sterilization, sometimes after long-continued but unsuccessful practice of contraception and subsequent induced abortions or sometimes after induced abortions with contraception discontinued.

THE CHOICE OF STERILIZATION—THE WOMEN'S REPLIES

The women themselves were asked why they decided to have the sterilization operation. If only the reasons which the women themselves gave as the most important are tabulated, the results are as follows:

1. *Health*—134 women, 39.6 per cent

Gynecological or obstetrical—72, of which 41 were toxemias of pregnancy and 31 were diseases of the uterus, disorders associated with pregnancy, delivery or the puerperium. General disease of the mother—54, of which 28 were tuberculosis, 26 other diseases. Eugenic, including mental disease or other hereditary diseases in the mother or the relatives—8.

2. *Economic*—60 women, 17.8 per cent

Difficult household financing—42. Household financing more difficult if another child—8; money needed for education—7. Have only girls and need money for weddings—3.

3. *Lack of desire for more children*—114 women, 33.7 per cent
Detailed reasons given here were mainly economic.

4. *Social*—30 women, 8.9 per cent

Do not want a large family because of business or housekeeping—15. Other people or the former wife's children are living together—6. Old age of husband or wife—5. Others—4.

In 174 of the cases, more than half of the total, the most important motive given by the woman was related to economic considerations. Even among those cases in which other reasons were mentioned, economic conditions often played a role as indirect motives. Hence, it is interesting to count all the women who mentioned some economic considerations among the reasons for sterilization. The result of such a tabulation indicated that there were 225 such women, two-thirds of the total.

The reasons for sterilization among those six women who had no children at all at the time of the sterilization are also interesting. Three reported that the mother's life would be endangered if she became pregnant, two because of a narrow pelvis and one because of valvular disease of the heart. One reported a hereditary disease in the woman, diagnosis unspecified. Two gave economic reasons, one that she was on public relief, the other that there were already too many dependents.

In the previous paragraphs, the direct reasons leading to sterilization were noted. The next pertinent question is the reason why sterilization was selected in preference to other methods of family limitation such as induced abortion or contraception. There was detailed questioning on this subject. The results are summarized on the following page.

Thus, there were three principal reasons for selecting sterilization: (1) The recommendation of a doctor. (2) Unsatisfactory experience with induced abortion, contraception, or both. (3) The desire for a reliable method of family limitation. It is interesting to note that the recommendation by a doctor was the most important single reason. This apparently means that many women had thought much about family limitation and so were easily moved to the decision for a sterilization operation

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<i>Reasons</i>	<i>Number of Women</i>	<i>Per Cent</i>
1. Recommended by doctor	132	39.1
2. Tried abortion and contraception but neither was satisfactory	70	20.7
3. Strong reason for limiting size of family, hence wanted a method not subject to failure	41	12.1
4. Had induced abortion, but did not regard it as a good way of limitation	23	6.8
5. Necessary to have another operation, so sterilization was simple	13	3.8
6. Practiced contraception but it was not satisfactory	11	3.3
7. Mental diseases, self or relatives	5	1.5
8. Others, including various combinations of (1) through (7)	43	12.7
TOTAL	338	100.0

by the expert advice of the doctor. The fact that many women were sterilized because they were not satisfied with other methods of family limitation supports the view that there had been a cumulation of unsatisfactory experience not alone with contraception but also with induced abortion. Briefly speaking, women wanting sterilization usually had been worried about having the operation and some driving force was needed in order to materialize a long-felt desire. Examples are the women who had experienced some undesirable result from induced abortion or the practice of contraception, or the women who had to have another operation anyway and had a sterilization operation too because the doctor recommended it.

The reports of the women as to the role of medical advice in the decision for sterilization is supported by the statements of the majority of the women that they had first learned something of sterilization through doctors or other professional groups. If considered in conjunction with the fact that many women were informed about sterilization by members of their

families or friends, it would appear that information about sterilization spreads mainly by word of mouth rather than through printed matter or meetings. This is in sharp contrast with the general observation that information about contraceptive measures usually is obtained from newspapers and magazines.

<i>Source of Information</i>	<i>Number of Women</i>	<i>Per Cent</i>
Professional groups (mainly doctors)	144	42.6
Friends	61	18.0
Printed matter	30	8.9
Families	23	6.8
Meetings	7	2.1
Professional groups and printed matter	24	7.1
Friends and printed matter	16	4.7
Others (various combinations of those listed above)	33	9.8
TOTAL	338	100.0

MEDICAL AND HEALTH ASPECTS

In the present survey, only 45 women, 13.3 per cent of the total, had sterilization performed as a single operation; 293 women had another operation performed at the same time. Of these other operations, 204, 69.6 per cent, were induced abortions, while in 56 cases, 19.1 per cent of the total, other operations than induced abortion, i.e., operation of retroversion, appendectomy, removal of ovarian cyst. Both induced abortions and other operations were performed simultaneously in 33 cases, 11.3 per cent of the total. Thus, only a small proportion of the women had sterilizations performed alone; the majority had some other operation, mainly induced abortion, which gave an opportunity for sterilization.

The length of hospitalization in relation with the kind of operations performed simultaneously is given in Table 7. The median length of stay in a hospital or private clinic was as

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follows: (1) All cases—9.9 days. (2) Sterilization performed alone—8.7 days. (3) Sterilization performed with induced abortion or with induced abortion as well as another operation—9.3 days. (4) Sterilizations performed with operations other than induced abortion—12.3 days.

Kind of Sterilization Operation. Of the 338 operations, 278, or 82.2 per cent, were performed by the abdominal approach, while 60, or 17.8 per cent, were performed by the vaginal approach. In all cases the operation was ligation and/or section of the Fallopian tubes. If these 338 operations are broken down by place of operation, 254 were in a hospital and 84 in a private clinic. In regard to the ratio of the two kinds of sterilization operation, there was no great difference between those performed in a hospital and those in a private clinic.

When the ratio between the abdominal and vaginal approaches of sterilization operation was related to the other kinds of operations performed simultaneously, it was found that the ratio was not greatly different whether or not an induced abortion was performed simultaneously. However, the proportion of abdominal approach was relatively higher in cases where some other operation was performed simultaneously, e.g., operation of retroversion, appendectomy, or removal

Table 7. Length of hospitalization in relation to type of operation.

NUMBER OF DAYS HOSPITALIZATION	STERILIZATION ALONE	STERILIZATION + INDUCED ABORTION, OR STERILIZATION + INDUCED ABORTION + ANOTHER OPERATION	STERILIZATION + OPERATION OTHER THAN INDUCED ABORTION	TOTAL
1- 3	1	2	1	4
4- 6	11	45	3	59
7- 9	19	93	9	121
10-12	9	66	20	95
13-15	2	21	15	38
16-40	3	9	8	20
TOTAL	45	1236	56	1337

¹ There is one other case for which no information was available.

of ovarian cyst. In the 45 cases where sterilization alone was performed, the abdominal approach was used in 33 cases and the vaginal approach in 12 cases.

Month of Pregnancy, Sterilization with Induced Abortion. As mentioned earlier, there were 237 women, 70.1 per cent of the total, who had an induced abortion performed simultaneously with sterilization. The operation was performed before the third month of pregnancy in 83.1 per cent of the cases, during the fourth month in 10.6 per cent, and from the fifth to the seventh month in 6.3 per cent. The breakdown by type of operation was as follows:

<i>Month of Pregnancy</i>	<i>Abdominal</i>	<i>Vaginal</i>
Before end of third	155	42
During fourth	22	3
Fifth to seventh	15	0
TOTAL	<u>192</u>	<u>45</u>

The sterilization operation combined with induced abortion performed from the fifth to the seventh month of pregnancy represented only 6.3 per cent of the cases, which is markedly lower than the percentage in the induced abortion study.

RESULTS OF STERILIZATION—PHYSICAL AND MENTAL

There was rather detailed questioning as to the physical and mental changes which the women recognized after the operation. Interpretation of the answers is difficult, however, for only 45 women out of the total of 338 had a sterilization independently of another operation. Obviously 45 is too small a number to obtain significant information about changes which were due solely to sterilization. Even so, the results observed by these 45 women may be of interest and are summarized below. It should be remembered that from 2 to 18 months elapsed between the operation and the interviews.

Of the 45 women, 23 recognized no changes. Thirteen women reported some disorders or discomforts, although they were not

severe. Nine felt that they had become healthier after the operation. The chief complaints in the 13 women who felt some discomforts were headache and such various conditions as bleeding, pain in the waist, abdominal pain, lassitude, or a neurotic condition.

The data in regard to changes in menstruation after the operation were tabulated for the 45 women who had a sterilization operation only. Nineteen said that they recognized no changes, and 26 observed changes of one kind or another. The most frequent change was a lesser amount of bleeding, shorter duration of menstruation, or the establishment of regularity in the cycle. In only one case did new menstrual disorders appear after the operation. In other words, three-fifths of the 45 women recognized some changes in menstruation, but almost all changes were improvements. Only one woman experienced menstrual disorders, and this case was a vaginal operation.

The proportion of women who observed no menstrual changes after the operation in the 338 cases as a whole was about the same as in the 45 cases, or 44 per cent. Among changes which took place after the operation, the majority were for the better. However, about one-sixth of the women who observed changes complained of menstrual disorders or irregularity in the cycle as appearing or growing worse after the operation. Since most of the group interviewed had another operation performed with the sterilization, it is apparent that the other operation might have influenced the observed changes.

FAILURES IN STERILIZATION

Among the 338 sterilizations surveyed, 5 were cases in which the women were having an operation performed for the second time because a first operation performed from one to four years previously had failed. In addition, there was one apparent failure in a woman who eight months before the interview had had a sterilization operation through an abdominal approach simultaneously with an induced abortion. Since that time, she

had experienced symptoms of pregnancy on three occasions and her doctor had performed a curettage. Although confirming evidence of these pregnancies was not obtained, the woman planned to repeat the sterilization operation. Failures in sterilization among the 338 operations are not known except in this one case, but it will be some time before the final result can be observed.

THE COST OF STERILIZATION

A tabulation of the total expenses which the women incurred for their sterilizations gave the following results: (1) When

Table 8. The cost of sterilization.

TOTAL EXPENSE (YEN)	STERILIZATION ALONE	STERILIZATION WITH OTHER OPERATIONS	TOTAL
WITHOUT SUBSIDY			
1,000- 5,000	—	1	1
5,000-10,000	11	39	50
10,000-15,000	9	53	62
15,000-20,000	1	12	13
20,000-25,000	—	5	5
25,000-30,000	—	2	2
30,000-35,000	—	4	4
TOTAL	21	116	137
WITH SUBSIDY			
0	2	11	13
1- 2,000	—	2	2
2,000- 4,000	2	14	16
4,000- 6,000	6	51	57
6,000- 8,000	4	34	38
8,000-10,000	6	21	27
10,000-12,000	3	19	22
12,000-14,000	—	10	10
14,000-16,000	—	7	7
16,000-30,000	1	4	5
TOTAL	24	173	197

¹ There are four other cases for which information was incomplete. Two were cases with subsidy, but the amount of the expense was not known. One was a case with no subsidy, but the amount of the expense was not known. One was a case for which no information about the subsidy or the amount of the expense was available.

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there was no subsidy, such as insurance, the cost averaged about 12,000 yen—U.S. \$33.30. (2) With a subsidy, such as the mutual relief insurance of an establishment or a company, the National Health Insurance, or public assistance by partial subsidy from the prefecture, or subsidy under the Daily Life Security Law, the cost to the patient averaged about 7,000 yen—U.S. \$19.50.

These results can be further broken down in accordance with whether the sterilization was performed alone or with other operations, mainly with induced abortion. (Table 8). Where there was no subsidy, the expense averaged 10,120 yen for sterilization alone and 12,630 yen for sterilization with other operations. With a subsidy, average costs were 7,250 yen and 7,310 yen respectively. The expense of sterilization was far greater than that of induced abortion, which was found earlier to average 2,200 yen.

In 199 of a total of 338 cases, or 58.9 per cent, the operation was performed with assistance from an agency which subsidized the cost wholly or in part. Greater availability of such subsidies would alleviate one of the major obstacles now confronting women who desire sterilization.

THE EVALUATION BY THE WOMEN

Of the total of 338 women, 171 or 50.6 per cent of the total, stated that they did not have any difficulties worthy of mention. The following table shows the results of a tabulation with regard to the difficulties mentioned by the remaining 167 women. (When more than one item was mentioned by a woman, all of the difficulties stated were counted.)

The most frequent difficulty was that the women found the required length of stay in a hospital or clinic too long a time to be away from their housekeeping or the care of their children. Next most frequent difficulties were those related to fear of the operation or of possible changes in general physical condition afterward. Also, many found that it was not easy to meet the necessary costs. There were some women who went through

<i>Kind of Difficulties</i>	<i>Number of Times Mentioned</i>	<i>Per Cent of Mentioned Difficulties</i>
1. Too busy to be hospitalized for a certain period of time	75	35.7
2. Fear of operation, or of changes in general physical conditions after operation	38	18.1
3. Too poor to pay for operation	38	18.1
4. Had to wait for some time because of conditions of hospital	15	7.1
5. Decided to have the operation but not quite willing to do so	15	7.1
6. Objection of family, mainly husband	10	4.8
7. Others	19	9.1

with the operation rather unwillingly, but, on the other hand, there were some who were so firmly determined that they had it performed against the opposition of their families.

Of the 338 women, 325 had the operation performed with the agreement of their husbands. The remaining 13 include 9 women who had the operation even though their husbands opposed it and 4 who had it without their husbands knowing about it.

The major problem involved for the women seems to have been the making of the decision to be sterilized. One question in the present survey was concerned with the length of time

<i>Time Between Final Decision to Have Operation and Performance of It</i>	<i>Number of Women</i>	<i>Per Cent</i>
Less than one week	193	57.1
Less than one month	70	20.7
Less than six months	41	12.1
Less than one year	15	4.5
More than one year	19	5.6
TOTAL	338	100.0

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between the final decision to have the operation and the actual performance of it. In over half the cases, the operation was performed less than one week after the decision had been made to have it.

Almost two-thirds of the women reported that there had been no changes in their sexual life after the operation. In 106 cases, 31 per cent of the total, the changes were for the better. In only 21 cases they were for the worse. The most important reason for improvement was release from fear of pregnancy. Many women stated that the sterilization increased satisfaction by husbands also. Although there are some previous publications on this subject, most of them concerned patients with mental disease. Since the present survey dealt primarily with normal women, its findings are of great interest.

Although some women experienced certain difficulties before the operation and a few had difficulties after it, 309 women, 91.4 per cent of the total, reported that they were generally satisfied with the operation. It was the impression of the interviewers that the most frequent reason for satisfaction was the surety that no unwanted pregnancy could occur.

Each woman was asked the following question: "Would you recommend the same operation to others, judging from your own experience, if their conditions were such as yours?" The following answers were obtained:

<i>Recommendation</i>	<i>Number of Women</i>	<i>Per Cent</i>
Yes, absolutely	287	84.9
Yes, conditionally	10	2.9
No	33	9.8
No answer	8	2.4
TOTAL	<hr/> 338	<hr/> 100.0

Thus, the great majority of women replied that they would recommend sterilization to others. Among these answers, however, there were some to which conditions were attached.

These conditions were, for example, "in case no other methods of limitation are successful" or "in case it is certain that no more children will be wanted." Among those who did not want to recommend sterilization, the principal reasons were: "It is somewhat lonely to have the feeling that no more children can be born," or "It would be a cause of trouble if another child should be wanted." Fourteen women gave answers such as these. Thirteen would not recommend sterilization because of the uncomfortable experiences at the time of the operation or the physical and mental complaints after it. Six women gave various other reasons.

The women were asked their opinions about male sterilization. Some two-fifths of the women had no knowledge of sterilization for men, but among those who knew about it the pros and cons were about equal. The most frequent reason for opposition was the fear of mental and physical disabilities in men. This was often phrased in such ways as, "If it was done, a man cannot work well," "It makes poor health," or "It does harm to the sexual abilities of men." These answers were given in about two-thirds of those who were against the male sterilization. Among about 14 per cent of the women, the reason for opposition was "After a man was sterilized, you cannot say he will always be well-conducted." There were fewer women in favor of sterilization for men than might have been anticipated.

SUMMARY

A survey of reported sterilizations of women was made in medium-sized and small cities and their adjacent rural areas in four selected Health Center Districts of Shizuoka Prefecture in Japan. Data were collected from a total of 338 sterilized women by two doctors through personal interviews. All of these women had had sterilization performed under the provisions of Article 3 of the Eugenic Protection Law, and the sterilization had been officially reported to the local health authorities during the period from April 1952 through March 1953. The educational as well as the economic status of the 338 couples sur-

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veyed was somewhat higher than that revealed in an induced abortion study conducted previously in approximately the same areas.

At the time of the sterilization operation, almost three-fourths of the women were between 30 and 40 years of age; the median duration of marriage was about 10 years. The average number of past pregnancies, including those which existed at the time of the sterilization operation was 5.7; that of past induced abortions, 1.7. The average number of living children at the time of sterilization was 3.4. Less than two per cent of the women had no living children. Nine-tenths of the women had had at least one induced abortion prior to being sterilized.

Approximately half of the 338 couples had practiced contraception at one time or another prior to the sterilization of the wife. Nearly four-fifths of the couples who had ever practiced contraception had practiced it prior to the first induced abortion. Sterilization was performed eventually because of the unsatisfactory results of contraception and induced abortions.

Among the 338 women interviewed, only 45 had a sterilization operation performed alone; all the rest had some other operation performed at the same time, generally an induced abortion. The average length of stay in a hospital or private clinic was about 10 days. The expense averaged about 12,000 yen (U.S. \$33.30) without subsidy and about 7,000 yen (U.S. \$19.50) with subsidy. Partial or total subsidy was given in three-fifths of the cases.

The most frequent reason given for sterilization was that of difficulties in the household economy; economic reasons were mentioned in more than two-thirds of the cases. Reasons related to health were given as the chief reason for the operation by two-fifths of the women. In only eight cases could the reasons be considered "eugenic."

In answer to the question as to why sterilization was decided upon rather than contraception or induced abortion, most of the women said either "because the doctor recommended it" or "because both of those other methods had proved to be un-

satisfactory." Some kind of driving force appeared to be necessary to make the woman decide on sterilization. Sometimes it was a succession of undesirable experiences with induced abortion; other times advice from a doctor or from a friend or relative was influential enough to tip the scales in favor of the operation. The most important sources of information about sterilization were doctors.

The most frequent obstacles to having the sterilization operation were the long stay in the hospital with its interference with home responsibilities and the difficulties in meeting the cost.

Questions were asked in regard to physical and mental changes experienced after the operation. In so far as sterilizations alone were concerned, almost one-third of the women reported slight complaints—e.g., headache. Generally speaking, however, the course after sterilization was good. Nearly all of the women were satisfied with the operation, while almost nine in each ten said that they would recommend it to others in similar circumstances.

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