

BIBLIOGRAPHIC DATA SHEET1. CONTROL NUMBER
PN-AAJ-5102. SUBJECT CLASSIFICATION (695)
NH00-0000-G704

3. TITLE AND SUBTITLE (240)

Acceptor data on female sterilization program in Korea

4. PERSONAL AUTHORS (100)

Han, D. W.; Moon, H. S.; Han, S. H.; Kim, K. H.

5. CORPORATE AUTHORS (101)

Korean Inst. for Family Planning

6. DOCUMENT DATE (110)

1977

7. NUMBER OF PAGES (120)

79p.

8. ARC NUMBER (170)

KS3Ø1.32.H233

9. REFERENCE ORGANIZATION (130)

KIFP

10. SUPPLEMENTARY NOTES (500)

11. ABSTRACT (950)

12. DESCRIPTORS (920)

Korea	Sterilization
Women	Family planning
Contraceptives	Demography
Management	Program planning
Contraception behavior	Cultural factor

13. PROJECT NUMBER (150)

489064900

14. CONTRACT NO. (140)

Korea

15. CONTRACT TYPE (140)

16. TYPE OF DOCUMENT (160)

PN- A.F.J. 510
48406-1900

ACCEPTOR DATA ON
FEMALE STERILIZATION PROGRAM
IN KOREA

Korean
Institute
for
Family
Planning



ACCEPTOR DATA ON
FEMALE STERILIZATION PROGRAM
IN KOREA

A Report Submitted to USAID/Korea
under
Grant Agreement No. 489-649-3-50098

December, 1977

By

Dae Woo Han

With Assistance of

Hyun Sang Moon, Sung Hyun Han, Kee Ho Kim

Dae Woo Han, M.D., Dr. P.H., is Director of Korean Institute for
Family Planning

Foreword

The purpose of this report is to provide acceptor data on the female sterilization program in Korea, which was supported by a Health and Family Planning Project grant of USAID. The report is divided into four sections. In Section One the socio-demographic characteristics of acceptors is discussed. The objective of this first section is to examine how various socio-demographic characteristics are related to the acceptance of female sterilization. Section Two deals with the pregnancy and contraceptive history of acceptors, which is one of important aspects to determine the demographic effect of the female sterilization program. Section Three of this report discusses complications associated with different female sterilization procedures, and Section Four discusses some of the problems of managing the female sterilization program.

In conducting this project, however, there were some data limitations. First, the whole data collection period of this project was only six months in length and the analysis was based on only seven hospitals. Therefore, it was too short of a period to observe the differential acceptability of female sterilization, and even these represent only the urban hospital networks. We recognize there may be important

differences with rural hospital networks, and that our universe of hospitals may not be representative of all hospitals in Korea. Also, to identify complications associated with female sterilization, we depended on a follow-up visit seven to 21 days after the sterilization was made. A long-term follow-up study is recommendable to investigate the side effects of female sterilization.

For this study, the Female Sterilization Surveillance from of the International Fertility Research Program (IFRP) was collected from seven hospitals which were designated for our study. We appreciated IFRP's coordination for this project and the participating doctors from seven hospitals, such as Dr. H. M. Kwack of Yonsei University Hospital; Dr. Y. S. Chaing of Seoul National University Hospital, Dr. S. B. Hong of Korea Univeristy Hospitals, Dr. S. H. Song of Hanyang University Hospital, Dr. Y. W. Suh of Dong San Hospital, Dr. Y. S. Kim of Ilsin womens' Hospitals, Dr. B. K. Moon of Chunnam University Hospital. Much thanks also is extended to Dr. C. M. Park, Director of JHPIEGO, and Dr. H. M. Kwack, Chairman of Obstetrics and Gynecology Dept., Yonsei University, for their valuable suggestions when needed.

Finally, I wish to express my deep gratitudes to Dr. James R. Brady, former General Development Officer of USAID/Korea for his advice and guidance in this project, and to Mr. William E. Paupe, his successor, who carefully read the initial draft of this report and provided us with many valuable comments.

Dae Woo Han
Director
Korean Institute for
Family Planning

December 1977

C O N T E N T S
= = = = =

	Page
I. Introduction	1
II. Methodology and Data	6
III. Major Findings	8
A. Socio-Demographic Characteristics of Acceptors	8
1. Age and Parity Distribution	8
2. Distribution of Number of Living Sons	15
3. Residence Background	19
4. Educational Attainment of Acceptors	21
B. Pregnancy and Contraceptive History of Acceptors	25
1. Pregnancy History	25
2. Age of Youngest Child of Acceptors ...	31
3. Contraceptive Method Used before Sterilization	34
C. Complications Associated with Female Sterilization	40
IV. Summary and Recommendations	49
A. Summary of Findings	49
B. Problems and Recommendations	52

	Page
1. Problems Identified in the Analysis of Acceptor Data	52
2. Administrative Problems and Recommendations	52
Appendix : Female Sterilization Surveillance Study Form	63
BIBLIOGRAPHY	65

LIST OF TABLES

		Page
Table 1.	Trend of Mean age and Parity of Sterilized Women by Government Family Planning Program: 1970 - 1977	9
Table 2.	Age Distribution of Female Sterilization Acceptors by Residence	10
Table 3.	Percent Distribution of Number of Living Children of Female Sterilization Acceptors by Current Residence	11
Table 4.	Age and Parity Distribution of Female Sterilization Acceptors by Source of Payment for Sterilization	12
Table 5.	Age and Parity Distribution of Female Sterilization Acceptors by Pregnancy Termination During the Admission for Sterilization	14
Table 6.	Percent Distribution of Sons of Female Sterilization Acceptors by the Place of Current Residence	16
Table 7.	Percent Distribution of Sons of Female Sterilization Acceptors by Source of Payment for Sterilization	17
Table 8.	Percent Distribution of Sons of Female Sterilization Acceptors by Pregnancy Termination During the Admission for Sterilization	18

	Page
Table 9. Percent Distribution of the Place of Residence among Female Sterilization Acceptors by Source of Payment for Sterilization	20
Table 10. Percent Distribution of Residence for Female Sterilization Acceptors by Pregnancy Termination During the Admission for Sterilization	21
Table 11. Educational Level of Female Sterilization Acceptors by the Place of Current Residence	22
Table 12. Educational Level of Female Sterilization Acceptors by Source of Payment for Sterilization	23
Table 13. Educational Level of Female Sterilization Acceptors by Pregnancy Termination During the Admission for Sterilization	24
Table 14. Mean Number of Parity, Still-Birth, Spontaneous-Abortion, Induced-Abortion by Residence	26
Table 15. Mean Number of Parity, Still-Birth, Spontaneous-Abortion, Induced-Abortion by age of Women	27
Table 16. Mean Number of Parity, Still-Birth, Spontaneous-Abortion Induced-Abortion by Pregnancy Termination During the Admission for Sterilization	28

	Page
Table 17. Last Pregnancy's Outcome Distribution of Sterilization Acceptors by the Place of Current Residence	29
Table 18. Last Pregnancy's Outcome of Female Sterilization Acceptors by Age of Acceptors.	30
Table 19. Last Pregnancy's Outcome of Female Sterilization Acceptors by Pregnancy Termination During the Admission for Sterilization	31
Table 20. Age Distribution of Youngest Child of Female Sterilization Acceptors by Pregnancy Termination During the Admission for Sterilization	32
Table 21. Age Distribution of Youngest Child of Female Sterilization Acceptors by Age of Acceptors	33
Table 22. Percent Distribution of Contraceptive Mainly Used before Sterilization by the Place of Current Residence	34
Table 23. Percent Distribution of Contraceptive Mainly Used before Sterilization by Age of Acceptors	35
Table 24. Percent Distribution of Contraceptive Mainly Used before Sterilization by Source of Payment for Sterilization	36
Table 25. Percent Distribution of Contraceptive Mainly Used before Sterilization by Pregnancy Termination During the Admission for Sterilization	37

	Page
Table 26. Percent Distribution of Primary Reasons for Preferring Sterilization to Other Methods	38
Table 27. Percent Distribution of Referral Source	39
Table 28. Complications Most Frequently Associated with Laparoscopic Sterilization in Selected Studies:1970 - 1972	41
Table 29. Percent Distribution of Complications Related to Sterilization Procedure	43
Table 30. Percent Distribution of Complication at the First Follow-Up Visit 7-21 Days After Sterilization	45
Table 31. Percent of Complication Related to Sterilization Procedure by Previous Medical Condition of Patients	46
Table 32. Percent of Complication Related to Sterilization Procedure by Pelvic and Operative Examination	47
Table 33. Percent of Complications Related to Sterilization Procedure by Pregnancy Termination During the Admission for Sterilization	47
Table 34. Percent of Complications Related to Sterilization Procedure by Performed Procedures	48

I. INTRODUCTION

As a part of the government's population control policy, the family planning program was initiated in 1962. Through the national family planning program various contraceptive methods have been distributed, with the major emphasis placed upon the IUD, oral pill, condom and vasectomy.

According to the "Family Planning Evaluation Survey" conducted in 1976, the acceptance rates of both IUD and oral pill were higher than those of any other method: 11 percent of Korean women who are in the reproductive age are wearing an IUD and 8 percent are using the oral pill while 4 percent of the male population in the reproductive age are vasectomy acceptors.¹⁾ Even though the operation fee has been paid by the government since the beginning of the program, the acceptance rate of the vasectomy method is low in Korea because this method faces a cultural barrier.

1) KIFP, 1976 National Family Planning Evaluation Survey,
Mimeo.

So far the IUD and oral pill are the most acceptable methods in Korea. However, due to the discontinuation of these methods by the acceptors, the number of women who experience unwanted pregnancies is constantly increasing.²⁾

Nevertheless, due to the great deal of government effort placed on family planning, the total fertility rate decreased from 4.0 per woman in 1971 to 3.5 in 1975. The government plans to reduce the fertility level to 2.9 by 1981.³⁾

To meet this goal, a more effective and acceptable contraceptive method should be provided through a well organized national family planning program. Fortunately, new female sterilization methods such as laparoscopy and mini-lab have been introduced recently in Korea and may provide just such a method. The public reaction on this sterilization method thus far has been a favorable one. One major contributing factor to this favorable reaction is the supply of equipment and training program supported by USAID since 1975.

2) Kim, Chi ja and Seung Hyun Han, Study on the Maximization of Family Planning Services among High Fertility Risk Woman, Seoul, KIFP, 1977. P. 35.

3) Korea. MOHSA, The Fourth Five Year Plan of Family Planning Program, 1975.

The seventy-two hospitals that participated in this program have played an active role in providing successful female sterilization services at their facilities.⁴⁾ Another reason for the favorable public response and the resulting improvement in the female sterilization program is the government's decision to take on the burden of paying in full the fees of the physicians performing the sterilizations. Before the government assumed this responsibility only a few women living in urban areas practiced female sterilization when they had induced abortion operations in private clinics.

The number of women sterilized through 1971 covered 1.0 percent of the total married women of reproductive age.⁵⁾ But the number increased to 4 percent in 1976 when the government began distributing laparoscopes.⁶⁾ The number of vasectomy acceptors was 57,000 in 1975, 41,000 in 1976 and 60,000 in 1977, while the number of female sterilization acceptors increased more rapidly. Twelve thousand women were

4) Koh, Kap Suk and Byung Sook Kim, Hospital Family Planning Program Evaluation, KIFP, 1977. PP. 6-7.

5) Moon, Hyun Sang. Seung Hyun, Han and Soon Choi, Fertility and Family Planning, KIFP, 1972. P. 92

6) Korea. MOHSA, Progress Report of Family Planning Program Supported by UNFPA, 1977. PP. 57 -59.

sterilized in 1975, 38,000 in 1976, and 140,000 in 1977.⁷⁾

The main impetus to this rapid growth of the number of sterilizations was, as mentioned above, the government reimbursement of the sterilization fee, which increased from 5,000 won in 1974 to 15,000 won in 1977, and the improvement in the techniques of the sterilization method. According to a recent survey, 96.4 percent of the eligible women answered that they think female sterilization is a more effective method than the others.⁸⁾

Considering this favourable reaction toward female sterilization, the government revised its original female sterilization target for the next five years from the original 700,000 operations to 1,220,000 operations. Were this target achieved during the next five years, a tremendous effect on fertility in Korea would be expected. Therefore, success or failure in achieving the population growth target depends on the success and failure of the future female sterilization program.

7) Korea. MOHSA, Ibid., P. 57

8) KIFP, op. cit.

The overall objectives of this project are to identify the major problems associated with the female sterilization program and to recommend effective program development strategies for the successful implementation of the female sterilization program in Korea.

The specific objectives of this study are 1) to measure the differential acceptability of female sterilization and to examine how various demographic and socio-economic characteristics are related to the female sterilization acceptance rate, 2) to identify the contraceptive and reproductive history of sterilization acceptors, 3) to identify any side-effects or complications associated with different sterilization procedures, 4) to identify demographic and socio-economic characteristics of the acceptors 5) to examine the demographic effect of the female sterilization program and to make recommendations for the improvement of the national female sterilization program. Unfortunately, the data utilized for this study are limited to the clinical record of patients from seven hospitals.

II. METHODOLOGY AND DATA

For this study, the Female Sterilization Surveillance Study form of International Fertility Research Program, which was specially designated for our study, was collected from seven hospitals.

The clinical record form developed by IFRP is the standardized one designed for the use of comparable study on female sterilization. Variable definition and classification, coding and tabulation are also standardized.

In selecting hospitals with which to provide the IFRP clinical record form, the following criteria was applied:

1. Those hospitals included in the "Hospital Family Planning Program" which had begun laparoscopic sterilization recently.
2. Those hospitals that exhibited a high performance in laparoscopic sterilization
3. Those hospitals which conducted follow-up observations on female sterilizations.

On the basis of the above criteria, seven hospitals

were selected from among the 75 hospitals supported by the government female sterilization program. The following hospitals were assigned high scores: Yonsei University Hospital, Seoul National University Hospital, Korea University Hospital, Hanyang University Hospital, Dongsan Hospital in Taegu, Ilsin Womens' Hospital in Pusan, Chunnam University Hospital.

For our study, 2,000 female sterilization surveillance forms were collected from the above hospitals during the six months from January 2, 1977 to June 30, 1977.

III. MAJOR FINDINGS

A. Socio-Demographic Characteristics of Acceptors

1. Age and Parity Distribution

If we measure the effectiveness of the family planning program in terms of the birth averted per acceptor, the sterilization method has a much higher effectiveness than any other method. But its contraceptive effectiveness is affected to a large extent by the age and parity distribution of acceptors. When the age of acceptor is young, one can expect more births to be prevented than in the case where the age of acceptor is old.

The trend of the mean age of sterilization acceptors is presented in Table 1. We can see a downward trend in the age distribution of sterilization acceptors. The mean age of women whose spouses had undergone vasectomies was 36 in 1970, but it declined to 32.6 in 1975. For female sterilization, the mean age of acceptors was 34 in 1975, but declined to 33.2 in 1977.

Table 1. Trend of mean age and parity of sterilized women by government family planning program: 1970-1977

Year	Vasectomy	Tubectomy
<u>Mean age</u>		
1970	35.9	-
1975	32.6	34.0
1976	32.8	33.5
1977	33.0	33.2
<u>Mean number of children</u>		
1970	4.4	-
1975	3.1	3.7
1976	2.9	3.3
1977	2.9	3.3

Source: KIFP, Family Planning Coupon Tabulation, Unpublished.

As shown in Table 1, the mean number of living children of the women who underwent female sterilization was 3.7 and 3.3 in 1975 and 1977, respectively. If we look at the ideal number of children of Korean eligible couples from the survey, it was 2.8 children, which means the majority of Korean couples want to have less than 3 children. But as shown in Table 1, the mean number of children of the sterilized women is still more than 3 children. This indicates

that there is a gap between the practice of family planning and general attitudes on family size.

Table 2 presents the relationship between the age of acceptors and their residence background. No significant difference has been observed between the urban and the rural area in the age of acceptors. But if we examine the distribution of the number of living children by the residence background, we can see a significant difference between the urban and the rural areas, as shown in Table 3.

Table 2. Age distribution of female sterilization acceptors by residence

	Total	Urban	Rural
24 or under	1.4	1.3	1.4
25 - 29	22.2	22.1	22.3
30 - 34	41.8	40.0	45.1
35 - 39	28.0	29.4	25.4
40 or over	6.6	7.2	5.8
Total	100.0	100.0	100.0
Mean	32.8	33.0	32.6
Total number of patients	2,000	1,306	694

χ^2 - Test: N. S.

Table 3. Percent distribution of number of living children of female sterilization acceptors by current residence

	Total	Urban	Rural
2 or less	28.9	33.4	20.6
3	42.5	43.2	40.8
4	20.3	16.6	27.2
5 or more	8.3	6.8	11.4
Total	100.0	100.0	100.0
Mean	3.13	3.02	3.33
Total number of patients	2,000	1,306	694

χ^2 - Test: $p < 0.01$

Next, we examined the age and parity distribution of acceptor by their sources of payment for the sterilization. In Table 4, "private" refers to the patients who paid for their own sterilization, and "program" refers to the patients whose sterilization was paid for by the government.

Even though the hospitals included in our study were supported by the government family planning program, there were a group of women who paid their own expenses.

Among the 2,000 sterilized women, 1,030 were supported by the government and 966 paid their own expenses. The age and parity distribution of these two groups are shown in Table 4. The mean age of acceptors covered by the government program was 32.9, and of those who paid their own expenses 32.7. However, this difference is of no statistical significance.

Table 4. Age and parity distribution of female sterilization acceptors by source of payment for sterilization

Demographic characteristics	Total	Patient status	
		Private	Program
<u>Age</u>			
24 or under	1.4	1.0	1.7
25 - 29	22.1	24.2	20.4
30 - 34	41.9	41.1	42.6
35 - 39	28.1	27.5	28.5
40 or over	6.5	6.2	6.8
Total	100.0	100.0	100.0
Mean	32.8	32.7	32.9
<u>Number of living children</u>			
2 or less	29.0	31.7	26.4
3	42.5	42.3	42.7
4	20.2	18.3	22.2
5 or more	8.3	7.7	8.7
Total	100.0	100.0	100.0

Demographic characteristics	Total	Patient status	
		Private	Program
Mean	3.13	3.01	3.17
Total number of patients	1,996*	966	1,030

χ^2 - Test: N. S.

* 4 cases are unknown.

Table 5 presents the age and parity distribution at the time of acceptor's pregnancy termination. The pregnancy termination here refers to delivery as well as induced abortion. If the patient was not currently pregnant at the time of admission, they were regarded as an interval case. If the pregnancy was terminated during the admission, it was coded as post-partum or post-abortum by the type of the termination outcome. Among 2,000 cases, 1,469 women had not been recently pregnant and 531 women were coded as post-partum or post-abortum. For the interval cases, 42.9 percent of the women were in the 30-34 age category and 19.1 percent in the 25-29 age category. But in the post-partum or post-abortum cases, 38.8 percent were in the 30-34 age category and 30.7 percent in the 25-29 age category.

If we examine the parity distribution of acceptors, 69.5 percent of the interval cases and 76.4 percent of the post-partum or post-abortum cases were of the parity three or less. Generally, the number of children of the women in the post-partum or post-abortum cases was lower than that of the women in the interval cases. Therefore, measures have to be taken to conduct the family planning services for the eligible women when they are in the hospital for delivery or induced abortion.

Table 5. Age and parity distribution of female sterilization acceptors by pregnancy termination during the admission for sterilization.

Demographic characteristics	All patients	Interval	Post-partum and abortum
<u>Age</u>			
24 or under	1.4	1.2	1.8
25 - 29	22.2	19.1	30.7
30 - 34	41.8	42.9	38.8
35 - 39	28.0	29.8	23.0
40 or over	6.6	7.0	5.7
Total	100.0	100.0	100.0
Mean	32.8	33.1	32.0

Demographic characteristics	All patients	Interval	Post-partum and abortum
<u>Number of living children</u>			
2 or less	28.9	25.7	37.8
3	42.4	43.8	38.6
4	20.4	21.7	16.6
5 or more	8.3	8.8	7.0
Total	100.0	100.0	100.0
Mean	3.13	3.17	3.00
Total number of patients	2,000	1,469	531

χ^2 - Test: $P < 0.01$

2. Distribution of Number of Living Sons

As indicated in other studies,⁹⁾ the boy preference is very strong in Korea; if this is true, we can expect very few sterilization from those who have daughters only, and a higher acceptance rate from those with two or three boys. What is the average number of sons for those who get sterilized? As an indirect measurement of the boy preference, we investigated the distribution of the number of sons of the female sterilization acceptors.

9) Kim, Chija and Seung Hyun Han, Op. cit., P. 24.

Table 6 presents the distribution of the number of living sons by the residence background. Among the total sterilization acceptors, 3.1 percent had no sons. But if we examine the number of daughters, 22.2 percent of the total sterilization acceptors had no daughters. This aspect indicates a strong boy preference in Korea.

Table 6. Percent distribution of sons of female sterilization acceptors by the place of current residence.

Number of sons	Total	Urban	Rural
None	3.2	3.7	2.3
1	33.0	38.1	23.6
2	47.8	45.3	52.6
3	13.4	10.9	18.0
4 or more	2.6	2.0	3.5
Total	100.0	100.0	100.0
Mean	1.80	1.69	1.99
Total No. of patients	2,000	1,306	694

χ^2 - Test: $P < 0.01$

In the Table 6, we examined the relationship between the boy preference and the residence. In the rural area, there is much stronger boy preference than in the urban area. In Table 7 we divided the total sterilized women into two groups, the private group and the program group according to their source of the payment for sterilizations. In the program group, the number of children the woman had at the time of the sterilization operation was greater than that for the private group.

Table 7. Percent distribution of sons of female sterilization acceptors by source of payment for sterilization.

Number of sons	Total	Patients status	
		Private	Program
None	3.1	4.2	2.0
1	33.1	35.4	31.0
2	47.9	44.4	51.2
3	13.4	12.9	13.9
4 or more	2.5	3.1	1.9
Total	100.0	100.0	100.0
Mean	1.80	1.76	1.83
Total number of patients	1,996*	966	1,030

χ^2 - Test: $P < 0.01$

* 4 cases are unknown

Table 8 shows the distribution of the number of sons by pregnancy termination during the admission for sterilization. Those women who were not pregnant at the time of sterilization had more sons than those in the post-partum or post-abortum cases. In summary, we can conclude that the boy preference is much stronger in the rural area, in the program group, and in the interval cases than in the urban area, in the private group, and in the post-partum cases.

Table 8. Percent distribution of sons of female sterilization acceptors by pregnancy termination during the admission for sterilization.

Number of sons	Total	Interval	Post-partum and abortum
None	3.2	2.1	6.0
1	33.0	29.7	42.4
2	47.8	50.9	39.4
3	13.4	15.0	8.8
4 or more	2.6	2.3	3.4
Total	100.0	100.0	100.0
Mean	1.80	1.86	1.63
Total No. of patients	2,000	1,469	531

χ^2 - Test: $P < 0.01$

3. Residence Background

The locations of the hospitals included in this study are 4 hospitals in Seoul, and one each in Pusan, Taegu, and Kwangju. Because all of the hospitals are located in the urban area, most of the acceptors in our study were urban dwellers. 65.4 percent of the total acceptor came from the urban area and 34.6 percent from the rural area.

Table 9 presents the residential background of acceptors by their source of payment for sterilization. For the private acceptors, 77.6 percent were in the urban area and 22.4 percent in the rural area. In the case of program acceptors, 54.0 percent were in the urban area and 46.0 percent in the rural area. Most of the rural women depended on the government program. If the government supports hospitals in rural areas and mobile teams for female sterilization, it could be a good strategy in increasing the female sterilization acceptance rate in the rural section.

Table 9. Percent Distribution of the Place of Residence Among Female Sterilization Acceptors by Sources of payment for Sterilization.

Residence	Total	Patient Status	
		Private	Program
Urban	65.4	77.6	54.0
Rural	34.6	22.4	46.0
Total	100.0	100.0	100.0
Total No. of Patients	1,996*	966	1,030

χ^2 - Test: $P < 0.01$

* 4 cases are unknown

The status of pregnancy termination during the admission for the sterilization by residence is shown in Table 10. 85.7 percent of the urban acceptors were post-partum or post-abortum cases. But in the rural area 42.1 percent of total acceptors were in the interval cases. This indicates that in the urban area most of the female sterilizations were performed when pregnancies were completed in the hospital. This increasing tendency of undergoing sterilization while pregnant corresponds with the increase in induced abortion and hospital delivery in the urban area.

Table 10. Percent distribution of residence for female sterilization acceptors by pregnancy termination during the admission for sterilization

Residence	Total	Interval female sterilization	Post-partum or abortum
Urban	65.3	57.9	85.7
Rural	34.7	42.1	14.3
Total	100.0	100.0	100.0
Total No. of Patients	2,000	1,469	531

χ^2 - Test: $P < 0.01$

4. Educational Attainment of Acceptors

The comparison of the educational attainment of the married women in their reproductive age with acceptors of female sterilization is shown in Table 11. 66.1 percent of Korean eligible women for family planning received only primary school education or no formal school education at all. For the female sterilization acceptors, only 40.9 percent of total acceptors received primary school education. In general the educational level of female sterilization acceptors was higher than that of the average eligible Korean woman.

This indicates that the woman's educational level is one of the important factors affecting sterilization acceptance rate.

Table 11. Educational level of female sterilization acceptors by the place of current residence.

Educational level	Eligible** women of national sample	Total	Residence	
			Urban	Rural
<u>Patient's</u>				
Primary or less	66.1	40.9	29.7	62.0
Middle school	18.6	26.8	27.9	24.7
High school	12.3	23.0	29.5	10.7
College or more	3.0	9.4	12.9	2.6
<u>Husband's</u>				
Primary or less	40.7	16.2	9.5	28.7
Middle school	20.8	20.0	15.4	28.6
High school	25.1	35.7	37.5	32.2
College or more	13.3	28.2	37.5	10.5
Total No. of Patients	6,020	1,998*	1,305	693

χ^2 - Test: $P < 0.01$

* 2 cases are unknown

** KIFP, 1976 National Family Planning Evaluation Survey.

The educational level of the husband of the female sterilization acceptor was also examined. Clearly the trend is that the higher the education of husband, the higher the sterilization acceptance rate.

Table 12 presents the relationship between educational level of acceptors and source of payment for sterilization. In the less educated group we can observe much more recruitment by the national family planning program.

Table 12. Educational level of female sterilization acceptors by source of payment for sterilization

Educational level	Total	Patient status	
		Private	Program
<u>Patient's</u>			
Primary or less	40.9	32.0	49.1
Middle school	26.8	24.9	28.6
High school	23.0	28.6	17.8
College or more	9.3	14.5	4.5
<u>Husband's</u>			
Primary or less	16.0	11.2	20.5
Middle school	20.0	14.6	25.0
High school	35.8	35.4	36.1
College or more	28.2	38.8	18.3
Total No. of Patients	1,995*	965	1,030

χ^2 - Test: $P < 0.01$

* 5 cases are unknown

The relationship between the educational level of acceptors and the status of pregnancy termination during the admission for sterilization is shown in Table 13. We can see that the education attainment of those in the post-partum or post-abortum group is higher than that of those in the interval group.

Table 13. Educational level of female sterilization acceptors by pregnancy termination during the admission for sterilization

Education	Total	Interval	Post-partum or abortum
<u>Patient's</u>			
Primary or less	16.2	18.4	10.0
Middle school	20.0	23.0	11.5
High school	35.7	34.6	38.7
College or more	28.2	24.0	39.8
<u>Husband's</u>			
Primary or less	40.9	45.8	27.5
Middle school	26.8	27.0	26.2
High school	23.0	19.7	32.0
College or more	9.4	7.6	14.3
Total No. of Patients	1,999*	1,468	531

χ^2 - Test: $P < 0.01$

* 1 case is unknown.

B. Pregnancy and Contraceptive History of Acceptors

1. Pregnancy History

The difference in the total number of pregnancies of women during the reproductive period without contraception and the total number of pregnancies at the time of sterilization may be regarded as the contraceptive effectiveness of sterilization. However, it is very difficult to measure the net effect of sterilization on birth prevention because of the effect of other contraceptives used which are replaced by sterilization and the socioeconomic and cultural factors that are associated with fertility behavior.

According to the national sample survey on fertility and family planning conducted in 1971, the average number of pregnancies of a woman who had not practiced contraception at all was about seven.¹⁰⁾ According to Table 14, the average number of pregnancies of sterilization acceptors was 5.7. Therefore, the difference of 1.3 may be regarded as the number of prevented pregnancies. The total number of live births experienced without contraception was about six while for the sterilization acceptors it was only

10) Han, Seung Hyun, A study on the Induced Abortion, KIFP, 1973. P. 11.

3.1. This big difference in the total number of live births may be due in part to the frequently induced abortions of the sterilization acceptors. According to our study, 77 percent of sterilization acceptors had experienced at least one induced abortion. This figure is much higher than the 38 percent for eligible women in general, which derived from national fertility survey in 1971.¹¹⁾

Table 14. Mean number of parity, still-birth, spontaneous-abortion, induced-abortion by residence.

Reproductive history	Total	Urban	Rural	X ² - test
Mean number of parity	3.13	3.02	3.33	P < 0.01
Mean number of still-birth	.04	.03	.05	N. S.
Mean number of spontaneous-abortions	.21	.24	.15	P < 0.01
Mean number of induced-abortions	2.33	2.55	1.92	P < 0.01
Mean number of pregnancies	5.71	5.84	5.45	N. A.

Table 14 presents the mean number of pregnancies experienced by sterilization acceptors by their residence background.

11) KIFP, o. cit.

The table shows that there is no significant difference between the urban and the rural women in the number of pregnancies experienced before sterilization. A much higher rate of induced abortion was observed in the rural area, however.

The total number of pregnancies and live-births and the total number of induced abortions by age of sterilization acceptors show a significant difference, as shown in Table 15. A large number of women sterilized before the age of 30 experienced less than two live births. Therefore, to reduce the current fertility level the government should expand the female sterilization program for young eligible couples.

Table 15. Mean number of parity, still-birth, spontaneous-abortion, induced-abortion by age of women.

Reproductive history	29 years and under	30-34	35 years and over	χ^2 - test
Mean number of parity	2.56	3.03	3.63	$P < 0.01$
Mean number of still-births	.21	.46	.39	N. S.
Mean number of spontaneous-abortions	.41	.20	.26	N. S.
Mean number of induced-abortions	1.39	2.19	3.13	$P < 0.01$
Mean number of pregnancies	4.30	5.88	7.41	$P < 0.01$

Table 16 presents the mean number of children, still-births, spontaneous abortions, induced abortions and total number of pregnancies experienced by the group of women who accepted sterilization at the time of delivery or induced abortion. Those who were sterilized at the time of delivery or induced abortion show a smaller family size than those who were interval cases.

Table 16. Mean number of parity, still-birth, spontaneous-abortion, induced-abortion by pregnancy termination during the admission for sterilization.

Reproductive history	Total	Interval	Post-partum or abortum	X ² - test
Mean number of parity	3.13	3.17	3.00	P < 0.01
Mean number of still-births	.04	.03	.06	P < 0.01
Mean number of spontaneous-abortions	.21	.18	.27	P < 0.05
Mean number of induced-abortions	2.33	2.40	2.13	N. S.
Mean number of pregnancies	5.71	5.78	5.46	N. S.

If we look at the last pregnancy outcome of the sterilization acceptors in Table 17, 40.9 percent of pregnancies ended in live births and 57.6 percent in induced abortions. It is surprising to see that so many women terminated their pregnancy in the form of an induced abortion.

Table 17 shows the outcome of the last pregnancy by residence background of the acceptors. In general, there was no difference between the urban and the rural in the last pregnancy outcome.

Table 17. Last pregnancy's outcome distribution of sterilization acceptors by the place of current residence.

Last pregnancy's outcome	Total	Urban	Rural
Live-birth. Still-birth	40.9	38.7	44.9
Induced abortion	57.6	59.6	53.8
Spontaneous abortion	1.6	1.8	1.2
Total No. of Patients	1,994*	1,305	689

χ^2 - Test: N. S.

* 6 cases are unknown

The last pregnancy's outcome of sterilization acceptors by their age is presented in Table 18. The proportion of women who ended their pregnancy in induced abortion was less for the young women. Therefore, it is recommended that much effort be put forth in the recruitment of young women for female sterilization in order to prevent unwanted pregnancies.

Table 18. Last pregnancy's outcome of female sterilization acceptors by age of acceptor.

Last pregnancy's outcome	29 and less	30-34	35 and more
Live-birth or still-birth	60.9	40.3	27.6
Induced abortion	36.9	58.0	71.4
Spontaneous abortion	2.1	1.7	1.0
Total No. of Patients	471	419	688

χ^2 - Test: $P < 0.01$

Table 19 presents the last pregnancy's outcome by pregnancy termination during the admission for sterilization. We can see no significant difference between the two groups.

Table 19. Last pregnancy's outcome of female sterilization acceptors by pregnancy termination during the admission for sterilization.

Outcome	Total	Interval	Post-partum or-abortum
Live-birth or still-birth	40.9	40.8	41.1
Induced abortion	57.6	58.5	55.1
Spontaneous abortion	1.6	0.7	3.8
Total No. of Patients	1,994*	1,468	526

χ^2 - Test: $P < 0.01$

* 6 cases are unknown.

2. Age of Youngest Child of Acceptors

The age of the youngest child here refers to the youngest living child born previous to the sterilization. It does not refer to a child born during the admission of sterilization. Through the investigation on age of the youngest child of the acceptors, we can examine how often they used a birth control method.

According to Table 20, 39.7 percent of the total sterilization acceptors had a youngest child under 2 years of age.

61.3 percent of women had used other contraceptive methods before resorting to sterilization or induced abortion.

Table 20. Age Distribution of Youngest Child of Female Sterilization Acceptors by Pregnancy Termination during the admission for Sterilization.

Age of Youngest Child	Total	Interval	Post-abortionum or partum
Under 1 year	9.7	11.3	5.2
1 year	14.8	13.9	17.5
2 years	15.2	12.6	22.3
3 years	11.8	11.1	14.0
4 years	12.0	12.6	10.3
5 years	11.0	11.3	10.1
6 years	9.0	9.5	7.6
7 years	4.2	4.7	2.9
8 or more years	12.3	13.1	10.1
Mean	3.66	3.74	3.4
Total No. of Patients	1972*	1457	515

χ^2 - Test: $P < 0.01$

* 28 cases are unknown.

The relationship between the age of the youngest child of female sterilization acceptors and pregnancy termination during the admission for sterilization is also shown in Table 20. A higher proportion of women who were sterilized during the post-partum or post-abortion period had a youngest child under 3 years of age.

Table 21 shows the age of the youngest child by acceptor's age. 74.6 percent of acceptors who aged under 30 were sterilized when the age of their youngest child was less than 2 years. In the age group 30 or more, in most cases the age of youngest child of the acceptors was more than 2 years.

Table 21. Age distribution of youngest child of female sterilization acceptors by age of acceptors.

Age of youngest children	29 and less	30 - 34	35 and more
Under 1 year	21.7	7.8	3.8
1 year	29.9	15.6	3.6
2 years	23.0	17.7	6.8
3 years	11.8	15.1	7.8
4 years	8.2	14.5	11.6
5 years	3.4	12.4	14.4
6 years	1.7	8.9	14.1
7 years	-	3.7	7.7
8 or more years	0.2	4.3	30.1
Mean	1.73	3.28	5.34
Total of No. of Patients	465	819	688

χ^2 - Test: $P < 0.01$

3. Contraceptive Method Used before Sterilization

Among the female sterilization acceptors, 28.8 percent were not using contraception before sterilization and 71.2 percent were using the oral pill, IUD, condom or other methods prior to the sterilization. As shown in Table 22, among the contraceptive users 27.7 percent were oral pill users, 21.3 percent were IUD users, 12.8 percent were condom users, and 1 percent had spouses who had undergone vasectomies.

There was no significant difference between urban and rural areas in contraceptive method used before sterilization, as shown in Table 22.

Table 22. Percent distribution of contraceptive mainly used before sterilization by the place of current residence.

Contraceptive method	Total	Urban	Rural
None	28.8	28.8	28.8
IUD	21.3	21.0	21.9
Oral pill	27.7	24.3	34.1
Sterilization	1.0	1.1	0.7
Condom	12.8	15.0	8.6
Others	8.5	9.9	5.8
Total No. of Patients	470	834	693

χ^2 - Test: $P < 0.01$

Table 23 presents contraceptive method used before sterilization by age of acceptors. In the young age group we can observe that a high proportion of women did not use any contraceptive method before sterilization. However, in the old age group, the proportion of women who did not use contraceptives before sterilization is increasing. Most of them used IUD and oral pill.

Table 23. Percent distribution of contraceptive mainly used before sterilization by age of acceptors.

Contraceptive method	29 and less	30 - 34	35 and more
None	42.6	27.6	20.9
IUD	16.8	21.1	24.7
Oral pill	25.1	29.1	27.7
Sterilization	.9	.8	1.2
Condom	9.4	13.5	14.1
Others	5.3	7.8	11.4
Total No. of Patients	470	834	693

χ^2 - Test: $P < 0.0$.

If we examine the relationship between contraceptives used before sterilization and sources of payment for sterilization, among program acceptors, there were many women who used the oral pill or an IUD before the sterilization. However, in the private cases, the proportion of women who used the oral pill or an IUD was low, but the acceptance rate of condom and other methods was higher than that of the program acceptors, as shown in Table 24.

Table 24. Percent distribution of contraceptive mainly used before sterilization by source of payment for sterilization.

Contraceptive method	Total	Private	Program
None	28.7	33.0	24.6
IUD	21.4	16.8	25.7
Oral pill	27.7	22.6	32.6
Sterilization	1.0	0.2	1.7
Condom	12.8	16.9	8.9
Others	8.5	10.5	6.6
Total No. of Patients	1,993*	964	1,029

χ^2 - Test: $P < 0.01$

* 7 cases are unknown.

Table 25 presents again the relationship between the type of contraceptive used before sterilization and pregnancy termination during the admission for sterilization. In the interval cases, 30.5 percent of women used the oral pill before sterilization and 24.8 percent were IUD users. But in the case of post-partum or post-abortum sterilizations, 41.4 percent of women had not used any method before sterilization.

Table 25. Percent distribution of contraceptive mainly used before sterilization by pregnancy termination during admission for sterilization.

Contraceptive method	Total	Interval	Post-partum or abortum
None	28.8	24.3	41.4
IUD	21.3	24.8	11.7
Oral pill	27.7	30.5	19.8
Sterilization	1.0	1.2	0.2
Condom	12.8	12.1	14.7
Others	8.5	7.2	12.1
Total No. of Patients	1,997	1,468	529

χ^2 - Test: $P < 0.01$

* 3 cases are unknown.

So far we have observed the relationship between age, residence, pregnancy termination, source of payment and type of contraceptives used before sterilization. Table 26 presents the primary reasons for preferring sterilization to other methods. 22.6 percent of total acceptors answered that their primary reason for choosing sterilization was the inconvenience of the other methods, such as taking an oral pill daily or using a condom; 20.4 percent cited personal knowledge or experience of failures occurring with other contraceptive methods; 15.6 percent cited personal knowledge or experience of undesirable side-effects with another method or a medical history of illnesses or symptoms of illnesses which interfered with other reliable methods; and 16.1 percent said their reason was an inability to obtain other reliable methods of contraception.

Table 26. Percent distribution of primary reason for preferring sterilization to other methods.

Reason for preferring sterilization	Number	Percent
Other method not easily available	323	16.1
Other method unreliable	409	20.4
Undesirable side-effects of other method	313	15.6
Inconvenience of other method	452	22.6
Other	503	25.1
Total No. of patients	2,000	100.0

Table 27 presents referral sources of sterilization acceptance. "Referral source" means the person or institution which, in the opinion of the patient, was mainly responsible for her having come to the hospital for sterilization. 32.9 percent of total acceptors cited a previously-sterilized woman as their referral source and 31.1 percent said family planning workers. But the proportion of women who said private physician was only 4.2 percent. Therefore, a more active participation by private physicians in the sterilization program seems essential for a more successful female sterilization program.

Table 27. Percent distribution of referral sources

Referral sources	Number	Percent
Self	262	13.1
Husband	49	2.4
Family planning worker	623	31.1
Private physician	84	4.2
Operated person	658	32.9
Others	144	7.1
Unknown	178	8.8
Total No. of patients	2,000	100.0

C. Complications Associated with Female Sterilization

Most of the female sterilization program in Korea is accounted for by laparoscopic sterilization and minilaparotomy. Laparoscopic sterilization is a relatively safe, short operation with minimal complications. Among the 2,000 acceptors included in this study, 1,612 women were sterilized by laparoscopy and 388 women were post-partum or post-abortum abdominal ligation. As with all surgery, however, certain, conditions of the individual woman, the equipment, or in the operation itself can handicap even a skilled physician in a laparoscopic sterilization. Embolism, emphysema, alterations in blood balances, or insufflation failure may develop. During the pneumoperitoneum, other complications such as bleeding, laceration, perforation, and burn may occur when instrument are being inserted or during coagulation and excision, and postoperative infection may develop, especially if the bowel has been injured.

Most doctors agree that the laparoscopic sterilization has a low morbidity rate. Complications in the reported series vary from less than one percent to about six percent, as Table 28 indicates.

In our study, a 2.1 percent frequency of complication was observed, as shown in Table 29. Dr. H. M. Kwack reported a 2.3 percent frequency of complication at Yonsei University Hospital.¹²⁾ He reported a, 1.8 percent frequency of complication in Yoon's ring and a 2.8 percent in Electric-Coagulation.

12) Kwack, Hyun Mo, Female Sterilization; Laparoscope, Korean Association for Voluntary Sterilization, 1977. P. 18.

Table 28. Complications most frequently associated with laparoscopic sterilization in selected studies 1970 - 1972.

	No. of Patients	Bleeding	Uterine Perforation	Burn	Bowel Damage	Complications by percentage (%)
Black 1971	300	4	8	2	1	5.0
Bradfield 1972	400	-	-	1	1	.5
Chaturachinda 1972	306	2	2	-	-	1.3
Chun 1970	120	4	-	-	1	4.2
Corson 1971	252	-	-	-	1	.39
Corson 1972	1,545	5	9	-	1	.97
Giard 1972	167	2	1	-	-	1.8
Jordan 1971	910	-	-	4	3	.76
Keith 1971	44	1	-	-	-	4.5
Liston 1970	760	6	-	-	-	.92
Pelliez 1970	46	3	-	-	-	6.5
Peterson 1971	186	7	5	-	-	6.9
Soderstrom 1971	28	2	-	-	-	7.1
Step toe 1970	1,350	4	-	-	-	.34
Thompson 1971	666	20	5	7	3	5.2
Wadhwa 1972	62	1	-	-	2	4.8
Wheeless 1970	75	3	-	-	-	4.0
Total	7,217	64	32	14	14	
Complications by Percentage		.9%	.4%	.2%	.2%	1.7%

Source: Department of Medical and Public Affairs, George Washington University Medical Center, Sterilization; Laparoscopic Sterilization - II What are the Problems? Population Report Ser. C, No. 2, March 1973.

The most frequent major complications may be described as emphysema, cardiac and respiratory difficulties, organ perforation, burn and hemorrhage. As shown in Table 29, the major complications noted in our study came from anesthesia, but most of these anesthesia complications were mild ones such as vomiting and headache. Among the 41 cases of complication occurring during the 2,000 laparoscopic procedures, 35 cases did not require overnight hospitalization.

Table 29. Percent distribution of complications related to sterilization procedure

(N = 2,000)

Complications	Number of Cases	Percent
Excessive Blood	6	.3
Surgical complications	Shock	.2
	Laparotomy required	.1
	Other	.1
Fever 38 or over	Not requiring anti-biotics	.1
	Requiring anti-biotics	.2
Anesthesia complications	Apnea	.1
	Vomiting	.8
	Shock	.1
	Aspiration	.1
	Headache	.1

Complications		Number of Cases	Percent
Other complications	Incision infection, Stitch abscess	2	.1
	Pain, tenderness, or itching at in- cision site	1	.1
	Spotting/bleeding/ discharge from incision	1	.1
	Pelvic/abdominal/ hypogastric pain (cramps)	1	.1
Complications related to steri- lization process	No additional hos- pitalization required	35	1.7
	Additional hospita- lization required	6	.3
Total		41	2.1

To identify the immediate complications associated with female sterilization, a follow-up visit 7 to 21 days after sterilization was made. Of the 2,000 cases, 1,161 patients were contacted. Complications observed during this period are reported in Table 30. Of the 1,161 cases contacted, 34, or 2.9 percent, showed complications. The most frequent complications observed during the first follow-up visit were incision infections, vaginal bleeding, backaches and pelvic pain.

Table 30. Percent distribution of complication at the first follow-up visit 7-21 days after sterilization.

Complications	No. of cases	Percent
Fever requiring antibiotics	13	1.1
Other complications		
incision infection, stitch abscess	5	.4
hematoma, bruise ecchymosis	1	.1
superficial wound separation	1	.1
wound dehiscence	1	.1
pain, tenderness, or itching at incision site	1	.1
spotting/bleeding/discharge from incision	1	.1
pelvic/abdominal/hypogastric pain (cramps)	2	.2
backache	3	.3
vaginal bleeding	3	.3
nausea, vomiting, anorexia	2	.2
general pain	1	.1
headache	1	.1
other	1	.1
Total	34	2.9

Table 31 explores the relationship between complications related to sterilization and the previous medical condition of the patient. A higher complication rate is evident for women who experienced systemic disease.

Table 31. Percent of complication related to sterilization procedure by previous medical condition of patients.

Previous medical condition	No complication	Complication	Cases
All patients	97.9	2.1	2,000
Abdominal surgery	96.7	3.3	122 ^{1/}
Pelvic surgery	98.1	1.9	1,555
Systemic disease	94.9	5.1	39 ^{2/}

χ^2 - Test: $P < 0.05$

1/ Systemic disease refers to any past or present systemic disease. It includes asthma, diabetes, sickle cell disease, and cardiac, renal, or pulmonary conditions, etc.

2/ Pelvic surgery includes previous induced abortion.

Table 32 presents the relationship between complications and the outcomes of pelvic examination. In this case also a higher complication rate was observed for the women who had a cyst.

Table 32. Percent of complication related to sterilization procedure by pelvic and operative examination.

Pelvic and operative examination	No complication	Complication	Cases
Normal	98.0	2.0	1,859
Adhesions	100.0	-	52
Fibroid	100.0	-	7
Cyst	95.2	4.8	20
Combination	94.4	5.6	17

Again, Table 33 presents the relationship between complications and pregnancy termination during the admission for sterilization. A higher complication rate was observed in the post-partum or post-abortum group.

Table 33. Percent of complications related to sterilization procedure by pregnancy termination during the admission for sterilization.

Any complication experience	Total	Interval	Post-partum or abortum
No complications	97.9	98.5	96.2
Complications	2.1	1.5	3.8
Total No. of patients	2,000	1,469	531

χ^2 - Test: $P < 0.05$

The relationship between complications and the sterilization method is shown in Table 34. The lowest complication rate was observed in Yoon's ring and the highest complication rate in abdominal ligation.

Table 34. Percent of complications related to sterilization procedure by performed procedures.

Performed procedure	No complications	Complications	Cases
Laparoscopy Y-Ring	99.4	0.6	1,197
Cautery	97.8	2.2	415
Total	99.0	1.0	1,612
Abdominal ligation	93.7	6.7	388
Total	97.9	2.1	2,000

IV. Summary and Recommendations

A. Summary of Findings

1. The mean age of the female sterilization acceptors is 32.8 and the mean parity is 3.1. 41.8 percent of the acceptors are in the 30-34 age group and 36.4 percent are in the over 35 group. Twenty-nine percent of acceptors had 2 children or less, and 71 percent had 3 children or more.

2. The age distribution of the acceptors does not show any significant difference by their residential background, but the parity distribution does. The source of payment for sterilization does not reflect any differences in age or parity distribution, but it does reflect a difference in age and parity if we divide total acceptors into post-partum and interval group. In the interval case, acceptors are young and their number of living children smaller than those in the post-partum cases.

3. A strong tendency of boy preference was reflected in the number of children that acceptors had. 96.9 percent of acceptors had at least one male child. The boy preference of program acceptors was much stronger than that of private acceptors.

4. A great number of women living in the urban area tend to accept sterilization during the hospitalization for delivery or induced abortion at their own expense.

5. The average educational attainment of female sterilization acceptors was higher than the educational level of women in general who are of reproductive age in Korea; the educational level of acceptors in the urban area was higher than that of the acceptors in the rural area; the educational level of the private acceptor was higher than that of the program acceptors; and the educational level of the post-partum group was higher than that of the interval group.

6. The mean number of total pregnancies of female sterilization acceptors was 5.7, but the mean number of total live-births was 3.1. The mean number of total induced abortions experienced by acceptors was 2.3.

7. The outcome of the last pregnancy of the sterilization acceptors was as follows: 41 percent completed in live-birth, 58 percent ended in induced abortion. The outcome of the last pregnancy of the acceptors shows a significant difference by acceptor's age. The rate of termination of pregnancy as an induced abortion was higher in old women than it was in young women.

8. Among the total acceptors, 61.3 percent of the women had children aged 3 years old or above. 71.2 percent of the total acceptors had employed contraception before sterilization. Most of them were IUD or oral pill users.

9. Among total acceptors, 22.6 percent of the acceptors responded that the primary reason of accepting female sterilization was due to the inconvenience of the other methods. 32.9 percent of total acceptors answered that their main referral source for their sterilization was a woman who had previously undergone a sterilization operation, and 31.1 percent said family planning workers had been their prime motivator.

10. The complication rate for female sterilizations was 2.1 per 100 cases, which was slightly higher than in other studies. Complications occurring during the first three weeks after the operation were 2.9 per 100 cases.

11. Complications in female sterilization related to the past medical history of the patients. Those who experienced systemic disease showed a higher incidence of complication than those who had not suffered from systemic disease.

12. Among the various female sterilization techniques, Yoon's ring showed the lowest frequency of complication. The complication rate was higher in abdominal ligation than in laparoscopy.

B. Problems and Recommendations

1. Problems identified in the analysis of acceptor data

Most of sterilized women were aged 30 or more. Therefore, to increase the efficiency of the program, an effort should be made to focus on young women. The acceptance rate of female sterilization was selective in terms of the education of the women and their residence background. For the development of an effective female sterilization program, emphasis should be given to the rural area and the urban low-income group. Most of sterilized women had experienced at least one induced abortion. Therefore, to avoid frequent induced abortions practiced for birth control, the IE & C program for female sterilization should be strengthened. This study also observed a relatively high incidence of complication associated with female sterilization. To reduce this incidence of complication, the current program should be improved both technically and managerially.

2. Administrative Problems and Recommendations

The main purpose of this part of the study lies in searching out the problems and difficulties in the execution of female sterilization program. The study of these problems

is of great importance for the improved management of the female sterilization program which is one of the most important family planning programs to be sponsored by the government for the next five years.

The KIFP research team has collected a voluminous amount of data on nationwide female sterilization based on the interviews of the doctors conducting female sterilizations and on the questionnaires sent to the directors and family planning fieldworkers at the health centers. Also, in Pusan, Taegu, and Kwangju a series of discussions on the more efficient management of the current female sterilization program was conducted with medical doctors, directors of health centers, and the city and province officials engaged in family planning services.

The following are the administrative problems that have been identified and the general recommendations that have been made for the elimination of those problems:

Recommendation 1. Utilization of laparoscopes in public hospitals should be increased for the efficiency of female sterilization program

At present, both public and private hospitals are equipped with laparoscopes for female sterilization. However, in the public hospitals that have received laparoscopes from the government free of charge, the laparoscopes are being underutilized, while in private clinics, laparoscopes are overutilized due to the large number of sterilization being conducted.¹³⁾ The primary reason for this under-utilization of the laparoscope in public hospitals is that those who want sterilization do not want to go to the provincial hospitals because of the cumbersome redtape they have to face before being hospitalized.

Another reason for the underuse of laparoscopes in public general hospitals is that due to the large number of patients either for female sterilization or other operations, laparoscopy is conducted only on designated dates.

Finally, at private hospitals the fee from the female sterilization is the income of the doctors who conduct the operation, while at public hospitals the sterilization fee that the individual clients pay has nothing to do with the income of the doctors who conduct sterilizations. Hence, at the public hospitals, the physician who is doing sterilization

13) Koh, Kap Suk and Byung Sook Kim, Op. Cit., P. 21.

in the public hospital is less enthusiastic. Opposed to this attitude of indifference in public hospitals, in a number of private hospitals a large number of sterilization patients pour in every day, and among a few private clinics a hot competition to recruit new clients can occur.

As a solution to the above problems, the physician who is doing sterilization in the public hospitals should be given incentives in one way or another so that the doctor who is working in public hospitals could be made much more enthusiastic about female sterilization.

As for the under-utilization of the laparoscope, measures have to be worked out to transfer them to hospitals where they will be efficiently used.

As for the "over-crowding" of private hospitals with female sterilizations, appropriate measures would have to be taken to prevent the private hospitals from "commercializing" the female sterilization program.

Recommendation 2. The problems of "over-crowding" at private hospitals and female sterilization complications must receive special attention in policy

In most cases, when a new contraceptive or sterilization method is introduced, the initial acceptance rate is good and increases for while. But soon the rate begins to decline when the method is found to develop complications.

Most of the complications and side-effects are derived either from the sterilization operation itself or from the inefficient management of the new method introduced. The medical side-effects from the sterilization operation can be reduced through better clinical studies; however, for the complications deriving from the mismanagement of the new method, an entirely new approach must be adopted. For instance, in the case of laparoscopy, the mismanagement of the laparoscope program has resulted in a variety of problems.

First, complications have developed due to the large number of female sterilizations that have been conducted per day. According to an estimate by doctors, 10 to 15 cases of female sterilization are the ideal number that should be conducted a day; if more than 10-15 operations are conducted a day, complications are destined to develop because not enough time can be allowed for the sterilization. At least half an hour of sterilization period with a laparoscope is required

for a successful sterilization operation.

Also due to this large number sterilization patients, the workload of the doctors at the private hospitals is unusually high. As a result there are great dangers that the overloaded and over-worked doctors may inadvertently make mistakes which later develop into a serious complication.

Finally, a thorough physical check-up of the patients should precede every sterilization operation.

As a solution to the above problems, the government must see to it that a large number of the sterilization patients do not get "over-crowded" into a few private hospitals for sterilization operations.

There are, of course, cases when the patients themselves, of their own accord, visit certain well-known private clinics for sterilization operations and thus cause the clinics to become over-crowded. However, except for the above cases, the over-crowding at private clinics occurs because almost all the sterilization patients are sent to or recruited at a few, selected private hospitals.

One measure against the over-crowding at the private clinics would be to set up a new female sterilization manage-

ment system in which the health centers distribute a coupon in such a way that the sterilization patients are not sent to a few, selected private hospitals, but instead are distributed evenly to all private clinics and public hospitals.

Recommendation 3. A special attention in policy has to be made to expand sterilization doctors and female sterilization clinics in the rural area

Since most of the female sterilization clinics and hospitals tend to be concentrated in the large cities, those women in the remote rural areas face difficulties in reaching hospitals for the sterilization operation. To solve this problem measures will have to be taken to spread the sterilization clinics throughout the country. Unlike in the cases of the loop insertion and vasectomy, the laparascopy requires highly trained techniques and expensive equipment.

In addition, the complications from female sterilization are much more difficult with which to deal.

Since female sterilization requires a high level of technical skill, only the OBS-GYNECOLOGIESTS should be allowed to perform the operation. In exceptional cases, well-trained surgeons could be allowed to conduct sterilization.

Even the OBS-GYNECOLOGIST who has not conducted at least 15 cases of female sterilization should not be allowed to perform the sterilization alone. If a strict criterion judging the qualification of the sterilization doctors is not set, there is danger that a large number of unqualified sterilization doctors would be licensed to practice the sterilization operation, creating further problems.

On one hand, the number of doctors and medical facilities required for female sterilization has to be increased in order to meet the ever-increasing number of people who want sterilization, but, on the other hand, such a large number of sterilization doctors cannot be produced simply because there are not enough doctors qualified to conduct female sterilization. One solution would be to establish a mobile female sterilization unit equipped with all the necessary medical facilities and operated by expert sterilization doctors. A city or province mobile sterilization unit could visit the county districts that have no sterilization clinics. The mobile sterilization clinics could stay in one county area for 1-2 weeks, providing sterilization services to those in the remote rural area.

Recommendation 4. Criterion of the selection of the individual to undergo sterilization should be considered for the program development

At the moment, all eligible women, regardless of their age and the number of their children, are being encouraged to undergo female sterilization. Since the female sterilization program is being supported financially by the government, every woman has the right to benefit from the program; however, there a number of women near their menopause who undergo female sterilization, and benefit little from the sterilization program, since they would soon become "sterile" due to their old age anyway.

For a more efficient management of the program, the sterilization program should be directed mainly to the women who are young and do not want additional children.

Recommendation 5. Support to the institutions responsible for the training of sterilization doctors should be strengthened

At present, in each city and province there are a few institutions responsible for the training of sterilization

doctors. There are several problems related to the management of these training institutions.

The first problem is the shortage of teaching equipment which is used for the trainees in the course of their instruction in the sterilization operation.

The second problem is the manpower shortage at these training institutions. The female sterilization program for doctors has been recently added to the existing training program at the institutions, but with no additional manpower supplied to cope with the sterilization program.

Supports, financial or otherwise, to the training institutions is the surest way to the improvement in the quality of the training programs for sterilization doctors, and to the efficient management of the female sterilization program.

Recommendation 6. The sterilization fee should be increased to provide better services

The individual doctors receives, at present, 15,000 won for each female sterilization conducted. This is not enough. One of the many problems that accounted for the failure of

the programs in the past was the small fee the individual doctor got for the loop insertion or vasectomy. The doctors received only a nominal service fee and, consequently, they became less enthusiastic about the two programs.

In a sense, the laparoscopic sterilization is the most effective because the government is pouring a huge amount of money into this program in order to improve this program, and it is most important that the doctors actively participate in this program of their own accord.

The doctors would heartily participate in this program if they were given a compensation commensurate with their service in the program. This improved service from the doctors would naturally lessen the danger of developing complications, and above all, the sterilization patients would benefit greatly from the improved sterilization services.

**INTERNATIONAL FERTILITY RESEARCH PROGRAM
FEMALE STERILIZATION SURVEILLANCE STUDY**

Please circle appropriate numbers and hexagons and fill in appropriate boxes and blanks

No. _____

PATIENT IDENTIFICATION:

1. Hospital or Clinic No. _____ 2. Admission Date _____

3. Patient's Name _____ 4. Husband's Name _____

5. Address _____ Telephone _____

6. Relative/Friend's Name _____ 7. Address _____

STUDY IDENTIFICATION

8. Center Name _____ and Number _____ 1-3

9. Study Name _____ and Number _____ 4-6

10. Patient Order Number _____ 7-10

PATIENT CHARACTERISTICS

11. Residence: 1) urban local 2) urban outside area 3) rural local 4) rural outside area _____ 12

12. Age (years completed) _____ 13-14

13. Gainfully Employed: 0) no 1) yes _____ 15

14. Race: 1) Caucasian 2) Mongoloid 3) Negroid 8) other **2** _____ 16

15. Religion: 0) none 1) Buddhist 2) Catholic 3) Hindu 4) Jewish 5) Muslim 6) Orthodox 7) Protestant 8) other **9** _____ 17

16. Marital Status: 1) never married 2) currently married 3) formerly married 8) other **9** _____ 18

17. Patient's Education: (school year completed) _____ 19-20

18. Husband's Education: (school year completed) _____ 21-22

19. Total Live Births: _____ 23-24

20. Children Now Living: number of males **8** or more = **8** number of females _____ 25

21. Age of Youngest Child: **8** or more years = **8** _____ 26-27

22. Total Number of Abortions: _____ 28-29

23. Number of Spontaneous Abortions: **8** or more = **8** _____ 30

24. Total Stillbirths: **8** or more = **8** _____ 31

25. Contraceptive Method Mainly Used Before This Operation: 0) none 1) IUD 2) oral 3) tubectomy 4) vasectomy 5) condoms 6) withdrawal/rythm 7) foam/diaphragm/jelly 8) other _____ 32

26. Patient Status: 1) private 2) nonprivate _____ 33

27. Patient Scheduled as: 1) outpatient 2) inpatient _____ 34

PREGNANCY AND MENSES

28. Last Pregnancy Outcome: **1** not previously pregnant 1) live birth 2) stillbirth 3) induced abortion 12 weeks or less 4) induced abortion more than 12 weeks 5) spontaneous abortion 6) septic abortion 7) ectopic 8) other _____ 35

29. Date Last Pregnancy Ended: _____ 36-41

30. Date Last Menstrual Onset: _____ 42-47

31. Currently Pregnant: 0) no number of weeks _____ 48-49

ADDITIONAL STUDIES

32. _____ **9 9** 50-51

33. _____ 52

34. _____ 53

35. _____ 54

Surgeon's Name _____ and Code _____ 55-56

MEDICAL DATA

36. Weight in kg. (**88** and over = **88**) **9 9** 57-58

37. Height in cm. **9 9** 59-61

38. Hemorrh. (ex Mb. a 3) 89) not done **9 9** 62-63

REMINDER: Retain this form and complete it at the first follow up visit 7-21 days after sterilization.

FOLLOW-UP DATA

67. Patient Discharged: 0) no → SKIP to item 78 1) yes _____ 64

68. Follow-Up Outcome: 1) clinic visit 2) home visit 3) moved 4) unable to locate 5) confirmed wrong address 6) died, cause _____ 8) other _____ 65

69. Reason for This Contact: 1) scheduled follow-up 2) emergency 8) other _____ 66

70. Number of Additional Contacts Related to Sterilization: **8** or more = **8** _____ 67

71. Readmission Related to Sterilization: 0) no number of night _____ 68-69

MEDICAL HISTORY

39. Abdominal Surgery: 0) no 1) yes, specify _____ 70

40. Pelvic Surgery: 0) no 1) yes, specify _____ 71

41. Systemic Disease: 0) no 1) yes, specify _____ 72

42. Other Complaints: 0) no 1) yes, specify _____ 73

EXAMINATION AND SURGERY

43. Pelvic and Operative Examination: 1) normal 2) adhesion 3) prolapse 4) fibroid 5) cyst 6) combination 8) other _____ 74

44. Pelvic Infection: 0) none 1) yes, acute 2) yes, chronic _____ 75

45. Anesthesia: 0) none 1) analgesia only 2) local 3) regional 4) general 5) 1 and 2 6) 2 and 4 8) other **1** _____ 76

46. Planned Procedure: 1) ovidectomy 2) vaginal ligation 3) vaginal hysterectomy 4) laparoscopy 5) abdominal ligation 6) abdominal hysterectomy 7) transurethral 8) other _____ 77

47. Performed Procedure: (use item 46 codes) _____ 78

48. Technique Used: (Use codes on technique code list) _____ 79

49. Difficulties at Surgery: (Use codes on reverse side of form) _____ 80-81

50. Pregnancy Termination This Admission: **0** no 1) concurrent with sterilization 2) preceding sterilization 3) after sterilization _____ 82

51. Pregnancy Termination Procedure: 1) D&C 2) vacuum aspiration 3) intrauterine 4) hysterotomy 5) cesarean 6) vaginal delivery 8) other _____ 83

52. Pregnancy Termination Outcome: (use item 28 codes) _____ 84

53. Other Surgery This Admission: (use item 50 codes) specify procedure _____ 85-86

54. Surgical Time (from incision through closure) (in minutes, 99 minutes or more = 99) _____ 87

55. Prophylactic Antibiotics Given: 0) no 1) yes _____ 88

COMPLICATIONS - STERILIZATION TO DISCHARGE

56. Any Complications Related to Sterilization Procedure: 0) no 1) yes, no additional hospitalization required 2) yes, additional hospitalization required _____ 89

57. Excessive Blood Loss: 0) no 1) yes _____ 90

58. Blood Transfusion Given: 0) no 1) yes _____ ml _____ 91

59. Surgical Complications: 0) none 1) shock 2) bowel/bladder injury 3) laparotomy required 4) 1 and 2 5) 1 and 3 6) 2 and 3 7) 1, 2 and 3 8) other _____ 92

60. Fever: 38°C / 100.4°F or Over, 24 Hours After Surgery: 0) no 1) yes 2) yes, requiring antibiotics _____ 93

61. Anesthesia Complications: 0) none 1) apnea 2) vomiting 3) convulsions 4) shock 5) aspiration 6) headache 7) combination 8) other _____ 94

62. Other Complications: (Use codes on reverse side of form) _____ 95-96

63. Death: 0) no 1) yes, cause _____ 97

64. Admission Date: _____ 98-101

65. Surgery Date: _____ 102-105

66. Discharge Date: _____ 106-109

72. Fever Requiring Antibiotics: 0) no 1) yes _____ 110

73. Other Complications: (Use codes on reverse side of form) _____ 111-112

74. Resumption of Full Work or Household Activities: 0) no 1) yes _____ 113

75. Have You Recommended Sterilization To Anyone Since Your Operation: 0) no 1) yes _____ 114

76. Date of This Follow-Up Visit: _____ 115-118

77. Date Set for Next Follow-Up Visit: _____ 119-122

FS 8/76 No _____ 123-124

PLEASE AIRMAIL TO: International Fertility Research Program, Research Triangle Park, North Carolina 27708 USA

**INTENTIONALLY
LEFT
BLANK**

BIBLIOGRAPHY

- Bai, Byoung Choo, "Tubal Sterilization via Supra-public Small Incision Using Newly Designed Uterine Elevator, "Voluntary Sterilization", KAVS, 1975. PP. 153-165.
- Cho, Kyoung Sik, Et. al., Hospital Family Planning Program Evaluation, KIFP, 1973.
- Co Hen, M., Et. al., "Internal Tubal Sterilization Via Laparoscopy," American journal of obstetrics and Gynecology, 109(5), PP. 794-809. 1971
- Fathalla, M.F., "Laparoscopic Sterilization in the Family Planning Program in Developing Communities," Contraception, 6(4), PP. 295-303. 1972
- Han, Seung Hyun, A Study on the Induced Abortion, KIFP, 1973.
- Hong, Sung Bong, "Female Voluntary Sterilization at Korea Univ. Hospital," Voluntary Sterilization, KAVS, 1975. PP. 123-127.

Koh, Kap Suk and Byung Sook Ki, Hospital Family Planning Program Evaluation, Korean Institute for Family Planning, 1977.

Kim, Chi ja and Seung Hyun Han, Study on the Maximization of Family Planning Services among High Fertility Risk Woman, KIFP 1977.

Korea. MOHSA, Progress Report of Family Planning Program Supported by United Nations Fund for Population Activities, 1977.

Korea. MOHSA, The Fourth five-Year Plan of Family Planning Program, 1975.

Korean Institute for Family Planning, 1976 National Family Planning Evaluation Survey,

Kwak, Hyun Mo, Female Sterilization; Laparoscope, Korean Association for Voluntary Sterilization, 1977.

Kwak, Hyun Mo and Chan Ho Song, "Laparoscopic Sterilization,"
Voluntary Sterilization, KAVS, 1975.
PP. 137-142.

Kwon, Soon Uk, Et. al., "Puerperal Tubal Sterilization,"
Voluntary Sterilization, KAVS, 1975.
PP. 129-135.

Moon, Hyun Sang, Et. al., Fertility and Family Planning
KIFP, 1972.

Moon, Hyun Sang, Factors affecting Fertility-Using Multiple
Classification Analysis, KIFP, 1973

Moon, Hyun Sang and Seung Hyun Han, Use-effectiveness, Extend
Use-effectiveness and demographic effective-
ness, of IUD and Oral pills, KIFP, 1973.

Park, Hyung Jong, Et. al., A Study on Some behavioral problems
in Sequential Processes of adoption in
family planning, Seoul National Univ.,
School of public health, 1974.

Siegler, A.M., "Tubal Sterilization," American Journal of
Nursing 72(9), PP. 1625-1629. 1972.

Stephoe, P. C., "Recent Advances in Surgical Methods of
Control of Fertility and Infertility,"
British Medical Bulbetin, 26(1),
PP. 60-64. 1970.