PN- ABH-332
70763

AGENCY FOR INTERNATIONAL DEVELOPMENT
PPC/CDIE/DI REPORT PROCESSING FORM

ENTER INFORMATION ONLY IF NOT INCLUDED ON COVER OR TITLE PAGE OF DOCUMENT

1. Project/Subproject Number

2. Contract/Grant Number: DPE-3041-A-00-0043

3. Publication Date: 1990

4. Document Title/Translated Title

Postpartum Sterilization by Nurse-Midwives in Thailand

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6. Contributing Organization(s)

FAMILY HEALTH INTERNATIONAL

7. Pagination: 4 pages

8. Report Number: 90-23

9. Sponsoring A.I.D. Office: POPULATION

10. Abstract (optional - 250 word limit)

11. Subject Keywords (optional)

1. postpartum
2. murse-midwives
3. paraprofessional
4. complications
5. counseling
6.

12. Supplementary Notes

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14. Telephone Number: 919/544-7040, ext 247

15. Today's Date: March 7, 1991

DO NOT write below this line

16. DOCID

17. Document Disposition: DOCRD [] INV [] DUPLICATE []

AID 590-7 (10/88)

Reprinted from: International Family Planning Perspectives
16(2) pp. 55-58, June 1990

Postpartum Sterilization by Nurse-Midwives in Thailand

"Using nurse-midwives to provide postpartum sterilization services not only frees physicians' time for more demanding procedures but benefits the patients in terms of the added information and attention they receive."

By Kanchana Kanchanasinith, Pattaka Piyapinyo, Pichit Pitaktepsombati, Suvathana Vibulsresth, D. S. Gates, Barbara Janowitz and Mark Robbins

Summary

To increase the availability of sterilization outside urban areas, the National Family Planning Program of Thailand decided to expand a pilot program to train nurse-midwives with operating room experience to perform postpartum sterilization. A comparison of 541 procedures done by nurse-midwives and 279 performed by physicians show that the two provider groups do not differ significantly with respect to the rate of surgical difficulties (2.2 percent among physicians and 3.1 percent among nurse-midwives) or the rate of complications one year after the operation (3.5 percent among physicians and 4.4 percent among nurse-midwives). However, there were significant differences regarding counseling about the operation ($p<0.05$), with nurse-midwives providing more complete information about the surgery than the physicians. The results of this study support the training of nurse-midwives to perform postpartum sterilization.

Introduction

Estimates from the 1987 Thai Demographic and Health Survey indicate that the proportion of women sterilized reached 22 percent in that year,[1] having previously increased from six percent in 1969–1970 to 19 percent in 1981.[2] Slightly over four-fifths of the sterilizations performed in Thailand are done postpartum.[3] Among all women who are sterilized, more than 80 percent obtain the procedure at government hospitals. Not all hospitals, however, are able to offer sterilization services, because of insufficient staff or facilities. Since most of the country's hospitals are located in urban areas, rural women must travel much further than their urban counterparts to receive services. Consequently, there are wide rural-urban differentials in sterilization rates: Among women with two or more living children, 45 percent of those living in urban areas have been sterilized, compared with 30 percent of those in rural areas. Among women who delivered at home, the sterilization rate is especially low (16 percent).[4]

To increase the availability of sterilization services at the provincial level in Thailand, particularly at community and district hospitals where physicians are not always available, a pilot project was undertaken in 1979 to train nurse-midwives to perform postpartum sterilization. It was anticipated that the participation of nurse-midwives would allow hospitals to better meet the demand for sterilization and would free physicians to perform other tasks. Twenty trained nurse-midwives performed 3,549 postpartum sterilizations during a 12-month period.[5] Although the nurse-midwives took longer than physicians to perform the surgery, the rates of operative difficulty and postoperative morbidity did not differ between the two groups. Thus, the pilot project showed that nurse-midwives could successfully perform sterilizations with minimal difficulties and complications. Because of the success of this pilot project, in October 1983 the Thai cabinet approved the use of trained nurse-midwives to carry out postpartum sterilizations under medical supervision.[6]

In 1985, the National Family Planning Program (NFPP) decided to expand the training program throughout the country and initiate a study to further evaluate the provision of sterilization services by nurse-midwives. The collaborating agencies in the study were the Thailand Fertility Research Association, the Institute of Population Studies at Chulalongkorn University in Bangkok and the United States–based Family Health International in North Carolina. The study was designed to compare the performance of physicians and trained nurse-midwives by contrasting surgical events and their immediate and long-term complications. It also attempted to evaluate the patients' impressions of all aspects of the service and their satisfaction with the operation one year later.

During March and April of 1985, the NFPP recruited and trained 33 nurse-midwives who had at least two years of operating room experience and had previously assisted physicians in postpartum sterilizations. (Thirteen had already performed the operation under a physician's supervision.) The training occurred in three provincial hospitals and four regional Maternal and Child Health Centers; a gynecologist at each location provided the training to groups of five nurse-midwives. The 12-week course included two weeks of classes and 10 weeks of clinical practice. All of the nurse-midwives were trained to occlude the Fallopian tubes by the modified Pomeroy method.[*] The nurse-midwives spent the first two weeks of clinical training observing procedures and acting as assistants during the operation. Then each performed 20 sterilizations, with the gynecologist-trainer assisting. During the last four

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[*] The tubes are brought out of the abdomen through a small incision, tied and cut.

weeks of clinical training, the nurse-midwives returned to their respective hospitals and carried out sterilizations under the observation and close supervision of gynecologists at their hospitals.

The Study

The study sample was drawn from seven provincial and eight community hospitals, selected because they had large obstetric caseloads and because nurse-midwives had either been assisting in sterilization procedures or performing them under a physician's supervision. These hospitals are located in four of the country's geographic regions (Northeast, Central, East and North). One physician and one nurse-midwife from each of the 15 hospitals were selected to participate in the study sample. The study design initially called for enrolling a total of 900 women (60 women from each of the 15 participating hospitals) over four months; all postpartum patients who had either requested or been motivated to request sterilization during the period were recruited for the study. Three hundred were to be assigned to the physicians and 600 to the nurse-midwives. However, it was not always possible to maintain a rigid proportionment between the two groups because of competing demands on the physicians' time. By the end of a four-month recruitment period that began in November 1985, 820 women were enrolled in the study, with 541 operated on by the nurse-midwives and 279 by the physicians.

For each sterilization they performed, the providers completed a report summarizing the surgery and any immediate complications. The patients were asked to return to the hospital for follow-up; most did so two weeks after the surgery, although three women returned between two weeks and three months. At the follow-up visit, data on short-term complications were collected. After one year, postcards were sent out reminding patients of a second follow-up visit; at that visit, the women were examined and asked to provide general clinical data (including information on complications, general complaints, medication and pregnancy status). Some of the women who failed to return for the one-year follow-up were visited at home by the nurse midwives. Ninety-one percent of the women in the physician group and 94 percent of those in the nurse-midwife group returned for the first follow-up; the proportions who completed the second were 84 percent and 83 percent, respectively.

The patients completed two satisfaction questionnaires, one before discharge from the hospital and one at the second follow-up visit. The first questionnaire, administered by either a nurse or a social worker, contained items on previous contraceptive practice, factors influencing the decision to choose sterilization and the patient's understanding of and satisfaction with the operation. The second questionnaire obtained information on physical complaints, the counseling that patients had received, their assessment of the services provided and their satisfaction with the operation one year after surgery. Clinical data were sent to the Thailand Fertility Research Association for processing and analysis; the responses from the two satisfaction questionnaires were processed by the Institute of Population Studies at Chulalongkorn University. Chu-square tests were used to compare the two groups by clinical and sociodemographic variables. The Fisher's exact test was used when the sample sizes were small.

Table 1. Percentage distribution of women undergoing sterilization, by social and demographic characteristics, according to sterilization provider, Thailand, 1985

Characteristic	Total (N=820)	Physician (N=279)	Nurse (N=541)
Region			
Northeast	53.8	51.6	54.9
Central	19.6	19.7	19.6
East	14.5	15.4	14.0
North	12.1	13.3	11.5
Age			
<20	1.1	0.7	1.3
20–24	28.9	23.7	31.8
25–29	34.0	37.3	32.3
30–34	21.8	22.8	21.4
≥35	14.1	15.8	13.3
Live births			
1–2	33.0	34.8	32.2
3–4	52.3	50.5	53.2
≥5	14.6	14.7	14.6
Education			
≤3 years	11.3	9.7	12.1
4 years	76.4	77.3	75.9
≥5 years	12.3	13.0	12.0
Total	100.0	100.0	100.0

Results

The distribution of the women's social and demographic characteristics did not differ significantly between the two provider groups ($p<0.05$). As Table 1 shows, the women in both groups were young: Thirty percent were younger than 25 and 34 percent were between 25 and 29 years old. About half of the women had had 3–4 live births and one-third had had 1–2 children. Approximately 75 percent of the women had had four years of education.

The frequency of surgical events associated with the sterilization, defined as either surgical difficulties or injuries, also did not differ significantly between the two provider groups. Surgical difficulties occurred in 2.2 percent of the procedures done by the physicians and in 3.1 percent of those done by the nurse-midwives. In both groups, most of the difficulties were in visualizing and grasping the tubes. There were no surgical injuries in 99 percent of all the procedures performed. Only one woman in each group had a tubal injury. (The woman in the physician group needed a suture to stop bleeding while the one in the nurse-midwife group did not need treatment.) No other complications occurred during surgery in either group. While 84–85 percent overall had no physical problems immediately following the procedure, 87 percent of the physician group and 84 percent of the nurse-midwife group said they had none one month later.

There were no statistically significant differences between the two groups in the number and type of complications that occurred during the surgery and immediately afterwards; there were also no differences in patient complaints reported at the two follow-up visits. According to reports of each surgical intervention, 0.8 percent of women in both groups experienced complications (incision bleeding and healing problems in the physician group and incision infection in the nurse-midwife group). At the one-year follow-up, complications were reported by 3.9 percent of the women in the physician group and 4.4 percent of the patients in the nurse-midwife group. Most of these were complaints of pain in the ovaries, tubes or uterus (adnexal pain). Other less frequent complications included pain at the incision site, hardening beneath the skin and vaginal bleeding. Complications led to hospital readmission of 0.8 percent of the women in the physician group and 0.4 percent of the women in the nurse-midwife group. No pregnancies were reported among either group.

While nine percent of the women reported that they were unable to do household chores for 0–4 days following the surgery, 54 percent said they could not do housework for 5–15 days after surgery, 27–28 percent did none for 16–30 days and nine percent did no housework for more than 30 days. These results reflect a general belief in Thailand that women should not exert themselves for a period after giving birth for fear of bad health later on. Because the women in this study not only

Table 2. Percentage distribution of women undergoing sterilization, by type of personnel who explained the operation, according to sterilization provider

Type of personnel	Total (N=820)	Physician (N=279)	Nurse (N=541)
Provider	49.4	23.6	62.7
Another nurse	15.9	25.8	10.9
Another physician	3.9	6.6	1.5
A family planning worker	3.0	3.6	2.8
Another staff person	1.9	2.2	1.8
Don't know/no explanation given/no answer	25.7	36.2	20.3
Total	100.0	100.0	100.0

were postpartum but also had undergone a sterilization procedure, they may have been extra cautious about performing any chores soon afterwards. Furthermore, Thais often hire a domestic helper to do various chores and many of the women in the study probably did so after their delivery and operation.

The two groups differed significantly with respect to whether or not the person performing the surgery explained the operation to the patient. Table 2 specifies the clinician who provided counseling and the type of information it included. Twenty-four percent of women in the physician group said that the person performing the surgery had explained the procedure to them, while the corresponding proportion in the nurse-midwife group was 63 percent. A nurse explained the procedure to 26 percent of the physicians' patients, and a nurse other than the one performing the operation explained it to 11 percent of the patients in the other group. More than one-third of those in the physician group and one-fifth of those in the nurse-midwife group did not know who had explained the operation to them, had received no explanation or gave no response.

To assess the counseling, the researchers asked the women a series of questions about the information they had received before the operation. As Table 3 indicates, women in the nurse-midwife group were significantly better informed about the operation, its consequences and follow-up care than women in the physician group ($p<0.05$). The difference in the information provided is reflected in the women's understanding of their surgery: Of the nurse-midwife patients, 48 percent were able to correctly identify the surgical procedure as one in which the tubes are cut and tied, while only 35 percent in the physician group were able to do so (not shown).

Almost all of the women in both groups expressed satisfaction with the operation, with only 0.6 percent of those in the nurse-midwife group saying they were dissatisfied. Furthermore, 97 percent of the women said they would recommend sterilization to others. The reasons why 3.5 percent of the women in the physician group and 2.9 percent of those in the nurse-midwife group would not recommend the operation to others were unrelated to the provider, but rather reflected a reluctance to offer advice on a personal matter. Asked if they would still choose to have the sterilization if they were to make the decision again, 96 percent of the women in the physician group and 98 percent of those in the nurse-midwife group said they would.*

Table 3. Percentage (and number*) of sterilization patients, by the type of information about the procedure received, according to sterilization provider

Information†	Total	Physician	Nurse
How it is performed	44.1 (780)	34.9 (275)	48.9 (515)
How long it takes	46.5 (790)	38.6 (272)	50.6 (518)
How effective it is	46.3 (774)	37.1 (267)	51.1 (507)
Possible complications	44.2 (767)	36.1 (263)	48.4 (504)
Necessary post-surgery care	77.4 (779)	68.8 (263)	81.8 (516)
Possible effects on menstruation	41.3 (786)	31.2 (269)	46.6 (517)
Indications for further medical treatment	62.5 (786)	53.2 (267)	67.2 (519)

*Ns differ because of the nonresponders.

†The nurse and physician groups differ significantly with respect to each of these variables ($p<0.05$).

Discussion

This comparative study confirms that nurse-midwives with operating room experience can be trained to perform postpartum sterilization with as few surgical difficulties and injuries as physicians. The rate of surgical difficulties among the nurse-midwives in the present study was similar to that found in the 1979 pilot project (five percent of 143 procedures)[7] and in a later field trial involving 20 nurse-midwives in northeastern Thailand (three percent of 3,549 operations).[8]

Our study also shows no difference in complication rates at the first follow-up between patients of nurse-midwives and patients of physicians. The rates of complications following surgery were lower in the present study (0.8 percent for both provider groups) than in either the earlier pilot project (seven percent for nurse-midwives and six percent for physicians) or the subsequent field trial (11 percent for nurse-midwives). These higher rates may be partially explained by the different timing of the data collection (prior to hospital discharge in the field trial vs. 15–90 days postsurgery in the present study). Furthermore, complications unrelated to the surgery (e.g., respiratory infections and cystitis) were included in the earlier studies' rates but not in the data presented here. The important clinical implications for the present study, however, lie in that there were no significant differences in the complication rates between the two provider groups.

The results of our study compare favorably with those of an earlier Bangladesh study. That study compared the performance of nursing professionals trained to perform tubectomies with that of qualified physicians.[9] The infection rates were 5.5 percent among the 366 tubectomies done by the nursing professionals and 6.4 percent among the 234 done by physicians. The patients also turned in self-evaluations of their physical problems: Over 84 percent in both groups said they had no physical problems either immediately after the sterilization procedure or one month later.

Our study followed the sterilization patients for one year after the operation and achieved an 83 percent follow-up rate at one year. No previous study of the suitability of training nurse-midwives has followed patients for longer than six weeks. We found that at one year after the operation, there were a few minor complications among both groups, none of which needed medical intervention. The frequency of these complications, roughly four percent, did not differ significantly between the two provider groups.

In Thailand, the family planning unit in each hospital generally provides counseling for women who seek contraceptive services. The unit's nurse or social worker informs clients about the methods that are available through the unit and the woman then chooses which contraceptive method she would prefer. Hospital staff schedule the procedure for those women who elect

*Patients gave the following reasons for saying they would not make the same decision again, for their dissatisfaction with the operation and for not recommending it to others: needed more children, should have used temporary methods in case more children are needed, had had pain during the operation, had had health problems afterwards, had been too old to undergo a procedure, were afraid of being blamed for interfering in others' affairs, were afraid that other people would not believe them, felt they should let others make their own decisions, and were afraid that other people would experience discomfort.

to be sterilized. Thus, these women will have already received some information about sterilization before they are referred for surgery. However, it is up to the individual provider to explain the actual surgery and tell patients what to expect afterwards and what postoperative care is required. Our study found that women sterilized by nurse-midwives had more accurate information on the procedure than those operated on by physicians: About half of the nurse-midwives' patients compared with one-third of the physicians' patients said they were told how the operation would be performed, and the same proportions were able to give a basic description of the surgery. One reason for this differential may be that the nursing professionals can spend more time with patients than can physicians, who are in demand for procedures requiring a higher degree of medical expertise. Even though few women in either provider group received complete information, the vast majority were satisfied with their operation. The reasons why very small proportions of women either would not recommend sterilization to others or would not decide to have the operation again if given the chance are not related to whether the procedure was performed by a doctor or a nurse.

Not only were the nurse-midwives as proficient as the physicians in performing sterilizations, they also provided more complete information to their patients about the surgery and, more importantly, about postoperative care. Using nurse-midwives to provide postpartum sterilization services not only frees physicians' time for more demanding procedures but benefits the patients in terms of the added information and attention they receive. With funds for family planning in short supply, governments and health programs will need to find innovative ways to make the most of these limited resources. Thailand has been in the forefront in the training of nurses to perform postpartum sterilizations. This cost-effective strategy to maximize medical personnel is rarely considered by administrators of family planning programs, who may fear that nurses would encounter too many difficulties in performing surgery compared with physicians.

As we noted earlier, the prevalence of female sterilization among Thai women is high, although it is far less common among women who live in remote rural areas and tend to deliver at home. In general, female sterilization services are available in district and provincial hospitals only and the procedures have been performed almost entirely by physicians. One advantage in training those nurses who are more available to rural residents is that it improves sterilization accessibility for a group that has long been underserved. It also allows physicians to perform other medical tasks and ultimately increases the number of sterilization providers. The findings of this study support the decision of Thailand's Ministry of Public Health to train more nurse-midwives to perform postpartum sterilizations and should encourage others to consider these nursing professionals as potential providers of sterilization services as well.

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Resumen

A fin de aumentar la disponibilidad de servicios de esterilización fuera de las zonas urbanas, el Programa Nacional de Planificación Familiar de Tailandia resolvió ampliar un programa piloto para la capacitación de parteras-enfermeras con experiencia de quirófano para realizar la esterilización postparto. Una comparación de 541 procedimientos realizados por parteras-enfermeras y 279 practicados por médicos revela que no hay grandes diferencias entre ambos grupos en cuanto a la frecuencia de problemas durante la intervención quirúrgica (2,2 por ciento entre los facultativos contra 3,1 por ciento en el caso de las parteras-enfermeras) ni de complicaciones durante el año posterior (3,9 por ciento frente a 4,4, respectivamente). Se observaron, no obstante, diferencias significativas en cuanto al asesoramiento acerca de la operación ($p<0,05$), pues las parteras-enfermeras brindaban una información más completa que los médicos. Los resultados del estudio aconsejan la capacitación de parteras-enfermeras para realizar la esterilización postparto.

Résumé

Désireux de rendre la stérilisation plus facilement accessible en zones rurales, le Programme national de planification familiale de la Thaïlande a décidé d'étendre un programme pilote de manière à enseigner à des infirmières/sages-femmes ayant déjà travaillé en salle d'opération, à pratiquer la stérilisation postpartum. Une étude comparée de 541 interventions effectuées par des infirmières/sages-femmes et 279 effectuées par des médecins n'a révélé aucune différence significative entre les deux groupes de professionnels en ce qui concerne le taux de difficultés chirurgicales (2,2 pour cent parmi les médecins et 3,1 pour cent parmi les infirmières/sages-femmes) ou le taux de complications un an après l'intervention (3,9 pour cent parmi les médecins et 4,4 pour cent parmi les infirmières/sages-femmes). Il existait, cependant, des différences significatives quant aux conseils donnés au sujet de l'intervention ($p<0,05$), les infirmières/sages-femmes fournissant des informations plus complètes au sujet de l'intervention que ne le font les médecins. Les résultats de cette étude soutiennent la formation des infirmières/sages-femmes pour pratiquer la stérilisation post-partum.