AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D C 20523

BIBLIOGRAPHIC INPUT SHEET

FOR AID USE ONLY
Batch 80

1. SUBJECT CLASSIFICATION

A. PRIMARY
Population — PC00-0000-0000

B. SECONDARY
Family planning

2. TITLE AND SUBTITLE
Contraceptive practice of incomplete abortion patients in Djakarta and Khartoum

3. AUTHOR(S)
Rushwan,H.; Doodoh,A.; Nayal,Z.; Nahas,H.; Chi,I-Cheng; Bernard,R.P.

4. DOCUMENT DATE	5. NUMBER OF PAGES	6. ARC NUMBER
1976	34p.	ARC

7. REFERENCE ORGANIZATION NAME AND ADDRESS
IFRP

8. SUPPLEMENTARY NOTES *(Sponsoring Organization, Publishers, Availability)*

9. ABSTRACT

10. CONTROL NUMBER
PN-AAF-382

11. PRICE OF DOCUMENT

12. DESCRIPTORS
Acceptability
Contraceptives
Decision making
Delivery systems
Djakarta,Indonesia?
Indonesia
Khartoum,Sudan?
Motivation
Sudan

13. PROJECT NUMBER

14. CONTRACT NUMBER
CSD-2979 Res.

15. TYPE OF DOCUMENT

AID 590-1 (4-74)

CONTRACEPTIVE PRACTICE OF INCOMPLETE ABORTION PATIENTS IN DJAKARTA AND KHARTOUM

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Abstract

CONTRACEPTIVE PRACTICE OF INCOMPLETE ABORTION PATIENTS IN DJAKARTA AND KHARTOUM

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Studies on hospital-based incomplete abortion patients in two Muslim countries (Indonesia and Sudan) revealed the magnitude of their unmet need for contraception before abortion and indicated the potential of maternity hospitals to meet such needs by providing contraceptive counseling when the patients are treated for abortion. Only 5.6 percent of the 143 septic abortion patients but 20.0 percent of the 734 nonseptic abortion patients admitted to the Djakarta Hospital used contraceptives within one month of the conception that resulted in this abortion. The proportion of the 2770 Khartoum abortion patients (all but 10 were nonseptic) using contraceptives before admission was also fairly low (10.0%) After the hospital treatment of abortion, the rates of contraceptive use increased to 37.5 percent for the septic and 28.0 percent for the nonseptic patients at the Djakarta hospital and 46.5 percent for the nonseptic patients at the Khartoum hospitals, representing proportional increases of 31.9, 8.0, and 36.5 percent respectively. While almost equal proportions of Djakarta patients --whether septic or not--used IUDs and oral contraceptives before abortion, most Khartoum patients who had used contraceptives before abortion had used orals. After the abortion, orals were by far the most frequently used contraceptives regardless of the type of abortion or of the hospitals. Findings also showed that those patients who had large families but had less access to contraceptives had a higher rate of increase in contraceptive use after abortion. Among the nonseptic incomplete abortion patients admitted to Djakarta as well as Khartoum hospitals, those having had previous abortions and those having complications during the treatment of their abortions also reported a somewhat higher rate of postabortion contraceptive use. The proportional increases of postabortion contraceptive practice in the abortion patients at these hospitals, where contraceptive counseling was provided, may be used as a reference for setting the preliminary target for family planning programs.

I. INTRODUCTION

Starting to use contraceptives as early as possible after abortion is considered important because patients have been found to ovulate before their first menstrual period after both induced and spontaneous abortion[1] [2]. Several studies have shown that contraceptive use by induced abortion patients after abortion increases both in frequency and use-effectiveness[3] [4] [5]. Few studies, however, have dealt with the contraceptive behavior of women having incomplete abortions, perhaps because most epidemiological aspects of incomplete abortion as well as the contraceptive needs of incomplete abortion patients are not so clear-cut as those of induced abortion patients. For these reasons, it would be difficult to refer findings about women having incomplete abortions to women of reproductive age in general.

Because incomplete abortion patients, whether their abortions are spontaneous or induced, are a high risk group for future pregnancies, improving their contraceptive practice would benefit both them and the hospitals that serve them. An inquiry into the contraceptive behavior before and after abortion of patients treated in hospitals where contraceptive counseling is provided could reveal both their need for contraception and how hospitals can meet this need. Such findings may also contribute to our knowledge of the epidemiology of incomplete abortion and thus to our ability to develop preventive measures.

Although it would be desirable to distinguish between incomplete abortions which were initially induced and those which were spontaneous, this is difficult.

As other studies have indicated[6 7], however, patients admitted to the hospital with septic incomplete abortions were more likely to have had illegally induced abortions than nonseptic patients.

The present study was conducted in the capital cities of two predominantly Muslim countries where induced abortion is illegal: Djakarta in the Republic of Indonesia in the western Pacific and Khartoum in the Democratic Republic of Sudan in northeast Africa. Induced abortion, according to Islamic teachings, is an assault on human life, but the use of contraceptives is permitted and considered desirable[8 9]. Family planning programs have been underway in Indonesia since 1957 and in Sudan since 1966; nevertheless, both countries still have high crude birth rates (over 40) and crude death rates (18)[10].

This report examines patterns of contraceptive use before and after abortion for septic and nonseptic incomplete abortion patients as well as patterns among patients at the different hospitals in Djakarta and Khartoum. How the differences in these patterns reflect the patients' needs for and access to contraceptives and how maternity hospitals might meet these needs are discussed.

II. MATERIALS AND METHODS

The Department of Obstetrics and Gynecology of the Dr. Tjiopto Mangunkusumo General Hospital of Djakarta and three hospitals in the three-town city of Khartoum--the Maternity Hospital at Omdurman, the Obstetrics and Gynecology Department of the Khartoum General Hospital, and the Obstetrics Section of the Khartoum North Hospital, all under the auspices of the University of Khartoum--cooperated in the study. The International Fertility Research Program (IFRP) at

Research Triangle Park, North Carolina, USA provided the standard protocol and monitored the study.

Patients were consecutively included in the study if they were Muslim and if abortion was in progress when they were admitted to the hospitals. Patient characteristics, reproductive history, condition at admission, treatment given, and incidence of complications were recorded on standard forms designed by the IFRP. The same definitions were used at all four hospitals. Patients with temperature readings of at least 100.4°F for two days or one reading of at least 102°F, suspected to have been caused by intrauterine infection, were diagnosed as septic. All other patients were classified as nonseptic incomplete, inevitable, or threatened (IIT) abortions. At admission, patients were asked what method of contraception they had used within one month of conception; at the follow-up contact, usually two to four weeks after the abortion, they were asked whether they were using contraceptives and, if they were, what method they were currently using. All hospitals provided contraceptive counseling after abortion.

This study included 893 incomplete abortion patients admitted to the Djakarta hospital from January 1972 through May 1974 and 2788 abortion patients admitted to the three Khartoum hospitals. Table I shows their distribution by type of abortion (septic or IIT), current marital status, and return for follow-up. While 153 (17.1%) of the 893 Djakarta patients were septic cases, all but 10 of the 2788 Khartoum patients were IIT cases. Only 12 or 1.3 percent of Djakarta patients and 18 or 0.6 percent of Khartoum patients were not currently married. Only 10 women (1.1%) of the former group but 351 (12.6%) of the

latter groups were not followed up. In line with these distributions, analyses were carried out on the following groupings.

1. Septic and IIT patients from the Djakarta Hospital only were compared.
2. Djakarta and Khartoum IIT patients were compared.
3. Contraceptive patterns of currently married patients only were studied.
4. Data on patients admitted to the three Khartoum hospitals was pooled for discussion of contraceptive behavior.

Some limitations of the data for this study are apparent. Our study population consists of incomplete abortion patients treated in hospitals and is not a representative sample of women having incomplete abortions. Our study does not include women who had minor complications with either recognized spontaneous abortions or illegally induced abortions. Nor does it include women who died before they could reach the hospital. Furthermore, the mechanisms of patient selection, in spite of the standard protocol, were not well known. For instance, the marked differences in the proportions of septic patients at Djakarta and Khartoum hospitals could reflect either a difference in the incidence of illegally induced abortions in the two areas or a difference in the patients' access to the hospitals.

Contraceptive practice before abortion may be underreported because of reticence among the women in this culture to discuss such matters, and contraceptive practice after abortion overreported because these women may have responded to the questions of their interviewers, who had in some cases been their counselors, with answers intended to please them. Thus, the proportional increase in contraceptive practice after abortion may be inflated.

In spite of such loopholes, we can address the issues set out at the beginning of this paper by examining the marked differences and their directions. When IIT cases at the Djakarta and Khartoum hospitals are compared, the similarities are probably as important as the differences in evaluating the women's contraceptive patterns and in understanding the epidemiology of these abortions.

III. FINDINGS

A. Septic and IIT Abortion Patients at the Djakarta Hospital

Patient Characteristics

Almost all of the septic and IIT patients at the Djakarta Hospital were urban residents. Slightly more of the IIT than the septic patients were currently married, gainfully employed, and had some formal education, but the differences were small and insignificant. Septic patients were more than one year older than IIT patients (median ages of 27.4 and 26.2 years, respectively) and had higher parity (medians of 3.2 and 2.4) and more living children (medians of 2.9 and 2.3). No marked difference in the sex ratio of living children was noted. Surprisingly, 26.1 percent of the septic patients reported at least one child loss, compared to only 4.5 percent of IIT patients. Almost two thirds of the former (62.1%) and only one third of the latter patients (33.8%) reported that they wanted no additional children (Table II).

Slightly more septic (6.5%) than IIT patients (1.4%) reported previous induced abortions, but more IIT (28.3%) than septic patients (15.0%) reported previous spontaneous abortions. As Figure 1 shows, whether calculated by rate per 100 women or by ratios per 1000 known pregnancies, the septic patients reported higher incidences of previous induced abortions, but lower incidences of previ-

ous spontaneous abortions than the IIT patients. These differences exist for women less than 30 years old as well as for women 30 years old and older. Differences in incidences of involuntary pregnancy wastage between the septic and IIT patients were more marked when stillbirths were added to spontaneous abortions. Consistently lower ratios of previous spontaneous abortion among older patients in both groups probably indicate underreporting because the older women may have more difficulty remembering.

The markedly higher incidence of child loss among septic patients persisted when calculated by child loss ratio per 1000 live births in each parity group (Table III). In addition, in both the septic and IIT groups, women with parity of seven or more reported a remarkably higher child loss ratio than women with lower parities.

In spite of their much higher child loss ratio, more septic patients wanted no more children. This difference persisted when patients were classified by number of living children. As expected, the proportions of women wanting no more children increased with the number of living children for both patient groups.

More septic (30.1%) than IIT patients (15.2%) were admitted in the midtrimester of pregnancy, and more of the former (28.2%) than the latter (15.6%) had one or more complications while hospitalized after their abortions. Six women in the septic group (3.9%) died while hospitalized, and one woman (0.1%) in the IIT group died after discharge.

In short, septic patients, compared to IIT patients, had more living children, wanted fewer additional children, and had a higher incidence of previous induced abortions. All these together with the fact that they were "septic" at admission suggest that more septic than IIT patients had had their abortions initiated artifically before admission. Their very high child loss ratio, however, deserves further investigation and is discussed with their contraceptive behavior.

Contraceptive Behavior

Only currently married women were included in the analysis of contraceptive practices. Data on contraceptive practice before abortion were collected for 143 septic and 734 IIT patients and after abortion for 136 septic and 729 IIT patients.

Table IV shows that only 5.6 percent of the septic patients but 20.0 percent of the IIT patients reported using contraceptives during the month of conception. After the current abortion, the proportion of septic patients using contraceptives increased markedly (37.5%), but the proportion of IIT patients only moderately (28.0%). Thus the direction of differences between the two groups was reversed. Among those who used no contraceptives before abortion, 31.3 percent of the septic but only 12.9 percent of the IIT patients accepted orals after the abortion. While each of the 4 septic patients and almost half of the 63 IIT cases who originally used orals continued to use them after the abortion, none of the 3 septic patients and only about one fifth (18.0%) of the 61 IIT patients who had used IUDs continued to use IUDs. The recent contraceptive failures for women who had used orals were probably attributed to personal

negligence, while IUDs were suspected of method failure or even of causing the spontaneous abortion.

Data on contraceptive practice before and after abortion were pooled for all methods used, as shown in Figure 2. In the septic group, a higher rate of previous contraceptive use was associated with the better educated women and, interestingly, with those wanting more children. But after the abortion, the usual contraceptive patterns emerged: women under greater demographic pressure--that is, older women of higher parity who wanted no more children--were more likely to adopt contraception. In addition, more of the less educated women (those with six years or less of formal education) than the better educated women (seven years or more) accepted contraception after abortion, probably mainly because contraceptives were more readily available than previously to those less educated. Impressively, while the preabortion contraceptive rates were slightly lower for those with child loss than those without, more than half (56.0%) of the former but only a little more than one quarter (28.0%) of the latter accepted contraception after the abortion. This rather paradoxical finding in postabortion contraceptive practice with regard to child loss deserves further careful investigation.

In the IIT group, on the other hand, contraceptive practice before and after abortion was in line with the known dynamics of contraceptive practice: women with more living children, and hence more need to limit the size of their families, and the better educated, employed women for whom contraceptives were probably more readily accessible reported higher rates of contraceptive use. The increase in contraceptive use after abortion was generally even and moderate. Previous abortions were associated with a higher rate of contraceptive

practice, especially after the incomplete abortion was treated. In contrast to septic patients, contraceptive practice of IIT patients before as well as after the abortion showed a negative association with child loss; that is, more women with no child loss were using contraceptives than women with child loss.

In general, women in the septic group seemed to have had less access before the abortion to contraceptives and perhaps to information about them. This hospital contact, however, served to meet their needs. Since women in the IIT group, on the other hand, probably had better access to contraceptives before abortion and many more of them wanted additional children from the beginning, there was, therefore, only a moderate increase in contraceptive use after abortion. IIT patients were also more likely to have had spontaneous abortions for this admission; how much this spontaneous abortion suppressed an existing need for contraception is not known.

B. IIT Abortion Patients at the Djakarta and Khartoum Hospitals

Patient Characteristics

Tables I and II show that virtually all of the 740 Djakarta women but only about two thirds of the 2778 Khartoum women (63.5%) lived in urban areas. of the three Khartoum hospitals, Omdurman Maternity serves a mostly urban area, Khartoum General, a semi-urban area, and Khartoum North, a predominantly rural area. Data on women from all three hospitals are pooled in the hope of providing a more representative picture of Khartoum.

Most IIT patients in both hospital groups were currently married. About 90 percent of the Djakarta patients but only about one quarter of the Khartoum pa-

tients (27.9%) had any formal education.* Few women in either group were gainfully employed, but fewer in the Khartoum group. Compared to Djakarta patients, women admitted to the Khartoum hospitals were about one year older, had higher median parities (0.75 higher), and a higher median number of living children (0.70 higher). The sex ratio of living children was slightly higher for the Khartoum patients (104.9) than for the Djakarta patients (97.2). The proportions of women with child loss were similar (4.5% for Djakarta and 5.4% for Khartoum patients). Slightly more Khartoum patients (41.8%) than Djakarta patients (33.8%) wanted no more children.

Within the Khartoum group, more of the women treated at Khartoum North, which serves a predominantly rural population, had child loss. Rural-urban differences are also shown in the proportions of women wanting no more children: more women at Omdurman Hospital, a moderate number of women at Khartoum General, and the fewest number of women at Khartoum North wanted no more children. The median numbers of living children for the three hospital subgroups, however, were similar.

The Khartoum cases, when pooled, had higher incidences of previous spontaneous abortions in rates per 100 women as well as in ratios per 1000 known pregnancies than the Djakarta cases in both the age groups under 30 and those 30 and older (Figure 1). When stillbirths are added to spontaneous abortions, however, the two groups show similar incidences of involuntary pregnancy wastage. The lower ratios of previous spontaneous abortion among older women in both Djakarta and Khartoum, a finding that contradicts the known epidemiology of spontaneous

*This corresponds somewhat to national differences; 43 percent of the Indonesian population but only 10 to 15 percent of the Sudanese is reported to be literate.

abortion, again suggests that the older women underreported their pregnancy wastages. The reported incidences of previous induced abortions in rates and ratios were much lower than the incidences of spontaneous abortions by age for both Djakarta and Khartoum patients. If it is valid to assert that women who have spontaneous abortions tend to have subsequent spontaneous abortions[11], then most of the IIT patients' current abortions were probably spontaneous. The fact that about 60 percent of the women in both Djakarta and Khartoum wanted more children supports this speculation.

Similar proportions of patients were admitted in their first trimester of pregnancy (84.3% for Djakarta and 85.7% for Khartoum) and had one or more complications during hospitalization (15.6% and 16.7%). As previously stated, one woman from Djakarta was known to have died after discharge.

Overall, the IIT patients at Djakarta and Khartoum were markedly dissimilar in education and urban-rural distributions (which probably reflect national and area differences) but noticeably similar in incidences of involuntary pregnancy wastages and in gestational age at this abortion (which may be related to the epidemiology of spontaneous abortion). The Khartoum women, however, had more living children, and more of them wanted no additional children than the Djakarta women.

Contraceptive Behavior

The 734 Djakarta patients and 2759 of the Khartoum patients, all currently married, were studied for their contraceptive practice before abortion. Two of the Djakarta patients, one of whom had died, and 336 of the Khartoum women were lost to follow-up and excluded from the study of postabortion contraceptive use.

Table V shows selected patient characteristics for Khartoum patients with or without follow-up. In general, they were similar except that more of the women not followed up lived in rural areas, and interestingly, more of them reported that they had used contraceptives before the abortion. While the reasons for the former finding are understandable, the reasons for the latter are difficult to ascertain. The two seemingly conflicting findings that more of them were rural but also more of them had used contraceptives before the abortion, together with the finding that other patient characteristics were similar, suggest that the postabortion contraceptive behavior of the two subgroups may not be that much different.

Eighty percent of the Djakarta patients and 90.0 percent of the Khartoum patients used no contraceptives before the abortion (Table IV). After the abortion, 72.0 percent of the former but only 53.5 percent of the latter were still not using contraceptives, an increase in contraceptive use of only 8.0 percent among Djakarta patients, but remarkably, 36.5 percent among Khartoum patients. Orals were the contraceptive method most frequently accepted after abortion by women in both groups. Of those who used no contraceptives before the abortion, 12.9 percent of the Djakarta but 39.3 percent of the Khartoum patients accepted orals. While only one fifth of the former IUD users at the Djakarta Hospital (18.0%) and one of the six former IUD users at the Khartoum hospitals continued to use IUDs after abortion, almost half of the former oral users in both groups continued to use orals. Seven Djakarta and 13 Khartoum patients were sterilized after abortion.

Data on contraceptive practice was pooled for all methods used in order to compare contraceptive practice of Djakarta and Khartoum patients before and

after abortion (Figures 3a and 3b). Khartoum patients, similar to the septic Djakarta patients discussed above, appeared to have had less access to contraceptives before the abortion; there were higher rates of preabortion contraceptive use among the better educated (women who probably had better access to contraceptives) than among the less educated women. Women who were of higher parities and wanted no more children did not have a higher rate of preabortion contraceptive use than those who were of lower parity and wanted more children. After the hospital contact for this abortion, however, the Khartoum patients' contraceptive use increased dramatically, and their pattern with regard to patient characteristics is in line with what would ordinarily be expected when contraceptives are readily available. Contraceptive use after abortion thus increased more markedly among women with little or no education and among women who were older, of higher parity, had more living children, and wanted no additional children.

Among both Djakarta and Khartoum patients, women who were unemployed had somewhat lower rates of contraceptive use before abortion than those who were employed. After the abortion, the difference disappeared because more of the unemployed started to use contraceptives. Women with child loss, however, had slightly lower rates of contraceptive use both before and after the abortion than those with no child loss. No associations between contraceptive practice and the sex ratios of living children were detected.

Contraceptive practices before and after abortion were also compared controlling for number of living children. In most subgroups in both Djakarta and Khartoum by number of living children, women with more than six years of education reported higher rates of contraceptive use before as well as after the

abortion than women with less than six years of education; the proportional increase, however, was still more marked in the less educated (Figure 4). In all subgroups except those with seven or more living children, women who had previous abortions were consistently more likely to accept some method of contraception after the current abortion than women who had no previous abortions. Since women with and without previous abortions have somewhat similar rates of contraceptive use before abortion when the number of living children is fixed, the proportional increase of postabortion contraceptive use among those with previous abortions is more marked (Figure 5). The number of women with child loss was too small in each subgroup to determine whether there was an association between child loss and contraceptive use after abortion when controlled for number of living children. In both groups, women with complications during hospitalization or after discharge had a slightly higher rate of contraceptive use after abortion as well as a somewhat greater proportional increase in use compared to their practice before abortion than women with no complications, regardless of the number of living children (Figure 6).

IV. DISCUSSION AND CONCLUSIONS

Judging from the patient characteristics and reproductive history of the incomplete abortion patients at the Djakarta Hospital, more women with septic than with IIT abortions had probably had their abortions artificially initiated. Judging from the distribution of types of abortion, more of the Djakarta than the Khartoum patients had probably had abortions artifically initiated. Because the selection factors for hospital treatment are unknown, we cannot ascertain how much these differences reflect the incidence of induced and spontaneous

abortions in the various catchment areas. Probably, most IIT patients were admitted to the four hospitals with spontaneous abortions.

The complex mechanism of adopting contraceptives involves an interaction of at least three factors: the woman's knowledge of, perceived need for, and access to the contraceptives. There is an additional consideration for our study group which is comprised of incomplete abortion patients. Women who claimed that they had used contraceptives before this abortion should be considered contraceptive failures. The higher rate of use among the better educated women before abortion, for instance, could mean either that they were more aware of their need and had better access to contraceptives or that they had used contraceptives more casually (a reasonable assumption in that they may be younger and may have practiced contraception to space their children). The postabortion contraceptive practice of these patients, however, may more accurately reflect the actual needs by patient characteristics since this hospital contact would solve such problems as access to contraceptives. The patterns of differences in contraceptive practice before and after abortion, indicated by the proportional increases, should then depict the magnitude of their unmet need for contraception before abortion. Of course, the nature of the current abortion (spontaneous or initially induced) and its outcome (with or without complications) as well as the effectiveness of the counseling may either affect the women's existing need or create a need that did not exist.

Standardization by the patients' age and number of living children did not substantially change the magnitude of the differences previously detected in the rates of preabortion and postabortion contraceptive use for the Djakarta and

Khartoum IIT patients. While neither the magnitude of the need for contraception before abortion nor the effectiveness of counseling after abortion could be objectively measured, the marked increase in contraceptive use after treatment for abortion among the Khartoum patients could probably be extrapolated to other hospitals for estimating the potential of a hospital contact to meet the patient's contraceptive needs. On the other hand, if we can assume that the two hospitals offered similarly effective counseling, then the lower increase in use among Djakarta IIT patients may mean that Djakarta patients had a lower unmet need for contraception before abortion than Khartoum patients. As a matter of fact, even this lower increase in use after abortion among the Djakarta patients should not be belittled. Women are likely to replace their involuntary pregnancy loss with another pregnancy. This did not appear to have happened with the IIT cases (which are probably composed mostly of spontaneous abortions) among our study patients.

The large number of IIT cases at all four hospitals permitted us to analyze in more detail the dynamics of their contraceptive acceptance. With the number of living children controlled, we found that women with previous abortions were more likely to accept contraception after abortion. Some of the IIT patients with previous abortions were probably advised to use contraceptives to prevent further pregnancies. The negative association between education and the proportional increase in postabortion contraceptive use may mean that, while the better educated women could get contraceptives with or without counseling, the less educated women benefitted more from the counseling.

The negative association between child loss and contraceptive practice (i.e., patients with child loss had a lower rate of practice) before and after abortion

for IIT patients disappears when the number of living children is taken into account. This finding, together with the findings that postabortion contraceptive rates were much higher for women with child loss than for those without in the Djakarta septic patients, and that child loss ratios per 1000 live births were higher for septic than IIT patients at Djakarta and were higher among women of parity seven or more than those with less parity for either type of abortion and at all hospitals, permits the speculation that children in large families are inadequately cared for. Further careful investigation is warranted. The slightly higher increase in contraceptive use among patients with complications suggests that the untoward course after the treatment of incomplete abortion, while undesirable in itself, may have stimulated the patients to accept contraception.

A follow-up period longer than the one month of our study is certainly needed to measure the effect on fertility of these patients' contraceptive use after abortion. The high follow-up rates in all hospitals at one month after abortion suggest that follow-up rates at longer intervals may be satisfactory. Interviewers other than the patients' contraceptive counselors should be well trained in interviewing techniques, and questions on contraceptive practice should be worded to minimize reporting biases.

Finally, we may venture to estimate the actual contraceptive needs of the currently married women of similar age and parity distributions in the catchment areas of the Djakarta and Khartoum hospitals. For Djakarta, the proportion of women with unmet need for contraception before abortion is probably somewhere between the proportional increase in contraceptive use after abortion among septic patients (31.9%) and that among the IIT patients (8.0%), presumably

closer to the latter percentage. For Khartoum on the other hand, the proportion of women with unmet need for contraception should be not lower than the 36.5 percent increase in use that we found among IIT patients. Notably, the pattern of increase in contraceptive use by patient characteristics after abortion among the septic patients in Djakarta and the IIT patients in Khartoum is similar to that encountered when national family planning programs were started in some developing countries[12]. While the effectiveness of contraceptive counseling in a mass family planning campaign and during hospitalization after abortion must differ, the proportional increase in contraceptive use after abortion for incomplete abortion patients may be used as a reasonable reference for setting the preliminary target for national family planning programs.

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TABLE I

CURRENT MARITAL STATUS AND FOLLOW-UP STATUS OF INCOMPLETE ABORTION PATIENTS* ADMITTED TO DJAKARTA HOSPITAL (1972-1974) AND KHARTOUM HOSPITALS (1974-1975) BY TYPE OF ABORTION

Hospital and Type of Abortion	Current Marital Status				Follow-Up Status				Total	
	No		Yes		No		Yes			
	No.	%	No.	%	No.	%	No.	%	No.	%
Djakarta										
Septic	7	4.6	146	95.4	8	5.2	145	94.8	153	100.0
IIT**	5	0.7	735	99.3	2	0.3	738	99.7	740	100.0
Total	**12**	**1.3**	**881**	**98.7**	**10**	**1.1**	**883**	**98.9**	**893**	**100.0**
Khartoum Omdurman										
Septic	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
IIT**	3	0.4	748	99.6	90	12.0	661	88.0	751	100.0
Total	**3**	**0.4**	**748**	**99.6**	**90**	**12.0**	**661**	**88.0**	**751**	**100.0**
Khartoum General										
Septic	0	0.0	6	100.0	0	0.0	6	100.0	6	100.0
IIT**	10	1.1	901	98.9	59	6.5	852	93.5	911	100.0
Total	**10**	**1.1**	**907**	**98.9**	**59**	**6.4**	**858**	**93.6**	**917**	**100.0**
Khartoum North										
Septic	0	0.0	4	100.0	0	0.0	4	100.0	4	100.0
IIT**	5	0.3	1111	99.7	202	18.1	914	81.9	1116	100.0
Total	**5**	**0.3**	**1115**	**99.7**	**202**	**18.0**	**918**	**82.0**	**1120**	**100.0**
Khartoum (Pooled)										
Septic	0	0.0	10	100.0	0	0.0	10	100.0	10	100.0
IIT**	18	0.6	2760	99.4	351	12.6	2427	87.4	2778	100.0
Total	**18**	**0.6**	**2770**	**99.4**	**351**	**12.6**	**2437**	**87.4**	**2788**	**100.0**

** All patients were Muslim.*

*** IIT = Nonseptic, incomplete, inevitable, and threatened abortions.*

TABLE II

SELECTED CHARACTERISTICS OF INCOMPLETE ABORTION PATIENTS* ADMITTED TO THE DJAKARTA HOSPITAL (1972-1974) BY TYPE OF ABORTION AND THOSE ADMITTED TO KHARTOUM HOSPITALS (1974-1975)

Characteristic	Djakarta Hospital			Khartoum Hospitals**			
	Septic *(N = 153)*	IIT*** *(N = 740)*	Total *(N = 893)*	Omdurman *(N = 751)*	Khartoum General *(N = 911)*	Khartoum North *(N = 1116)*	Total *(N = 2778)*
Rural residence (%)	0.0	0.4	0.3	6.6	32.7	59.6	36.5
Gainfully employed (%)	8.2	12.4	12.0	1.3	5.4	4.2	3.8
No formal education (%)	15.0	10.7	11.5	84.7	59.7	74.0	72.1
Median age	27.4	26.2	26.4	28.2	25.4	27.2	27.3
Median parity	3.2	2.4	2.5	3.1	3.1	3.2	3.1
Median number of living children	2.9	2.3	2.4	3.1	3.0	3.0	3.0
Sex ratio of living children	94.2	97.2	96.8	101.8	110.4	102.7	104.9
Child loss (%)	26.1	4.5	8.3	0.8	0.5	11.0	5.4
Wanting no additional children (%)	62.1	33.8	38.7	49.1	47.7	34.5	41.8

* *All patients were Muslim.*
** *IIT = Nonseptic, incomplete, inevitable, or threatened abortions.*
*** *Includes IIT patients only.*

TABLE III

CHILD LOSS RATIOS PER 1000 LIVE BIRTHS BY PARITY AND TYPE OF ABORTION FOR INCOMPLETE ABORTION PATIENTS* ADMITTED TO THE DJAKARTA HOSPITAL (1972-1974) AND FOR IIT PATIENTS ADMITTED TO KHARTOUM HOSPITALS (1974-1975)**

Hospital/Type of Abortion	Parity	No. of Patients	No. Of Live Births	No. of Child Losses	Child Loss Ratio
Djakarta Hospital Septic	1-2	36	55	3	54.5
	3-4	38	132	12	90.9
	5-6	29	164	14	85.4
	7+	23	192	42	218.8
		126	543	71	130.8
ITT**	1-2	206	303	3	9.9
	3-4	159	552	4	7.3
	5-6	104	560	13	23.2
	7+	92	761	47	61.8
		561	2176	67	30.8
Khartoum Hospitals (pooled) IIT**	1-2	757	1131	28	24.8
	3-4	697	2431	49	20.2
	5-6	520	2833	61	21.5
	7+	394	3144	102	32.4
		2368	9539	240	25.2

* *All patients were Muslim.*

** *IIT = Nonseptic, incomplete, inevitable, and threatened abortions.*

TABLE IV

CONTRACEPTIVE PRACTICE BEFORE AND AFTER ABORTION
FOR INCOMPLETE ABORTION PATIENTS[1] ADMITTED TO THE DJAKARTA HOSPITAL (1972-1974)
BY TYPE OF ABORTION AND THOSE ADMITTED TO THE KHARTOUM HOSPITAL (1974-1975)

	Before Abortion		After Abortion					
				Percent Distribution by Type of Contraceptive Practice				
	No.	%	No. with Follow-Up	None	Conventional	IUD	Oral	Sterilization
Djakarta Hospital								
Septic								
None	135	94.4	128	64.1	0.0	4.7	31.3	0.0
Conventional	1	0.7	1	(0.0)[2]	(0.0)	(0.0)	(100.0)	(0.0)
IUD	3	2.1	3	(100.0)	(0.0)	(0.0)	(0.0)	(0.0)
Oral	4	2.8	4	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)
Total	**143[3]**	**100.0**	**136**	**62.5**	**0.0**	**4.4**	**33.1**	**0.0**
IIT[5]								
None	585	80.0	583	79.1	4.1	2.9	12.9	0.7
Conventional	22	3.0	22	(22.7)	(31.8)	(9.1)	(31.8)	(4.5)
IUD	61	8.4	61	54.1	7.2	18.0	14.8	4.9
Orals	63	8.6	63	41.3	14.3	1.6	42.9	0.0
Total	**731[3]**	**100.0**	**729**	**72.0**	**6.4**	**4.3**	**16.2**	**1.1**
Khartoum Hospitals (pooled IIT[5])								
None	2484	90.0	2190	55.1	0.6	4.4	39.3	0.6
Conventional	15	0.5	14	(31.2)	(25.0)	(25.0)	18.8	(0.0)
IUD	6	0.2	6	(50.0)	(0.0)	(16.7)	(33.3)	(0.0)
Orals	251	9.1	200	38.5	0.0	5.5	55.5	0.5
Sterilization	3	0.1	2	(0.0)	(0.0)	(50.0)	(50.0)	(0.0)
Total	**2759[3]**	**100.0**	**2412[4]**	**53.5**	**0.7**	**4.6**	**40.5**	**0.6**

1 All patients were Muslim and were currently married.
2 Percentages bracketed were those with denominator less than 50.
3 Seven patients in the Djakarta Hospital (three septic and four IIT) and one in the Khartoum Hospital patient groups were excluded because their contraceptive practice was unknown.
4 Eleven patients were further excluded because specific contraceptive methods used at follow-up were unknown.
5 IIT = Nonseptic, incomplete, inevitable and threatened abortions.

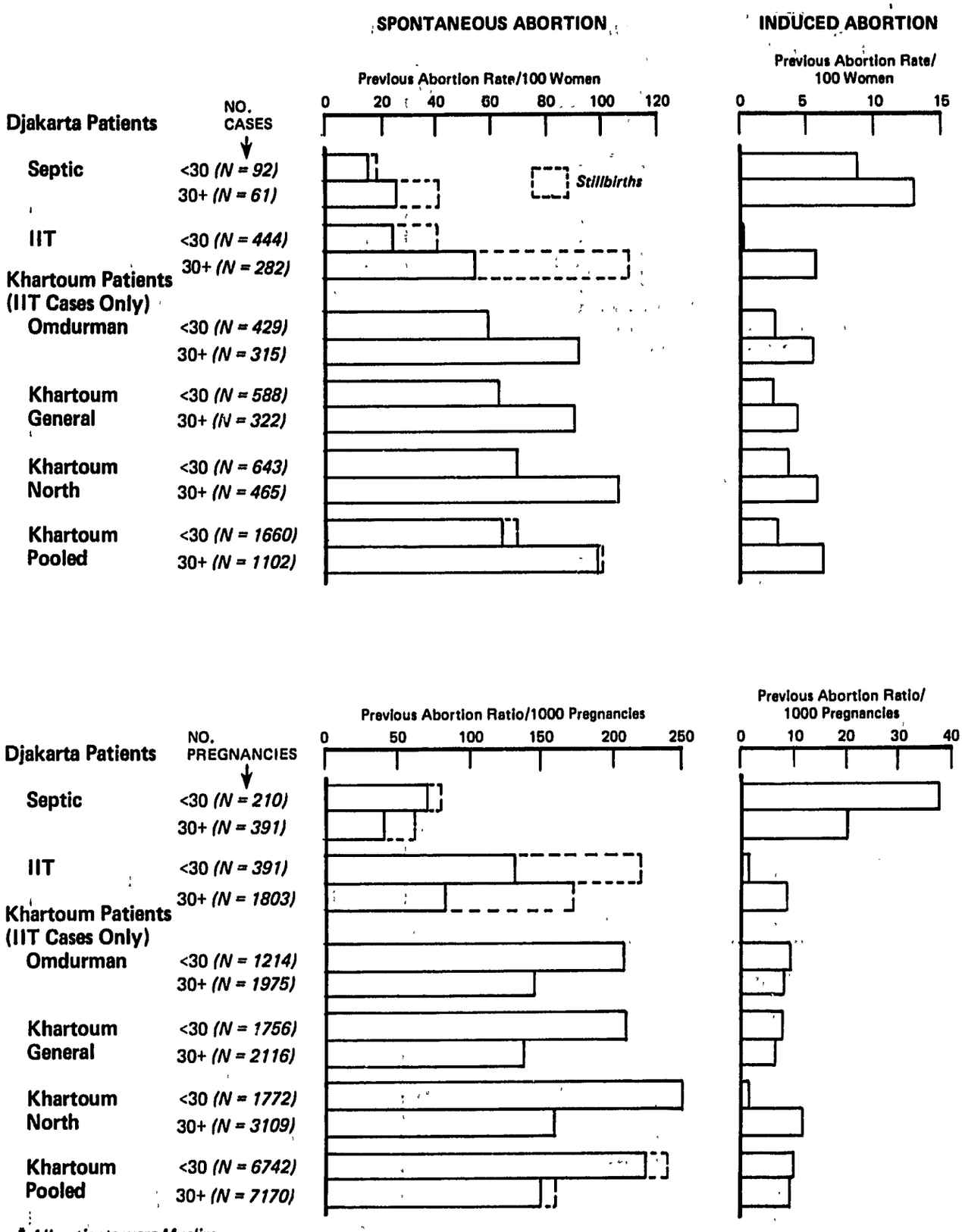
TABLE V

SELECTED PATIENT CHARACTERISTICS FOR IIT* ABORTION PATIENTS ADMITTED TO THE KHARTOUM HOSPITAL 1974-1975 BY FOLLOW-UP STATUS**

Characteristic	Follow-Up Status	
	Yes *(N = 2423)*	No *(N = 336)*
Rural (%)	25.1	36.0
With formal education (%)	71.6	76.2
Gainfully employed (%)	3.7	3.6
Median age	27.3	26.7
Median parity	3.2	2.8
Median number of living children	3.1	2.7
Median number of additional children wanted	1.6	1.6
Contraceptive practice before the abortion (%)	9.2	15.8

* *IIT = Nonseptic, incomplete, inevitable, and threatened abortions.*

** *All patients were Muslim and currently married.*



* *All patients were Muslim.*

** *IIT = Nonseptic, incomplete, inevitable, or threatened abortions.*

Figure 1. Rates and Ratios of Previous Spontaneous and Induced Abortions by Type of Abortions for Incomplete Abortion Patients* Admitted to Djakarta Hospital (1972-1974) and IIT** Abortion Patients Admitted to the Khartoum Hospitals (1974-1975) by Hospitals.

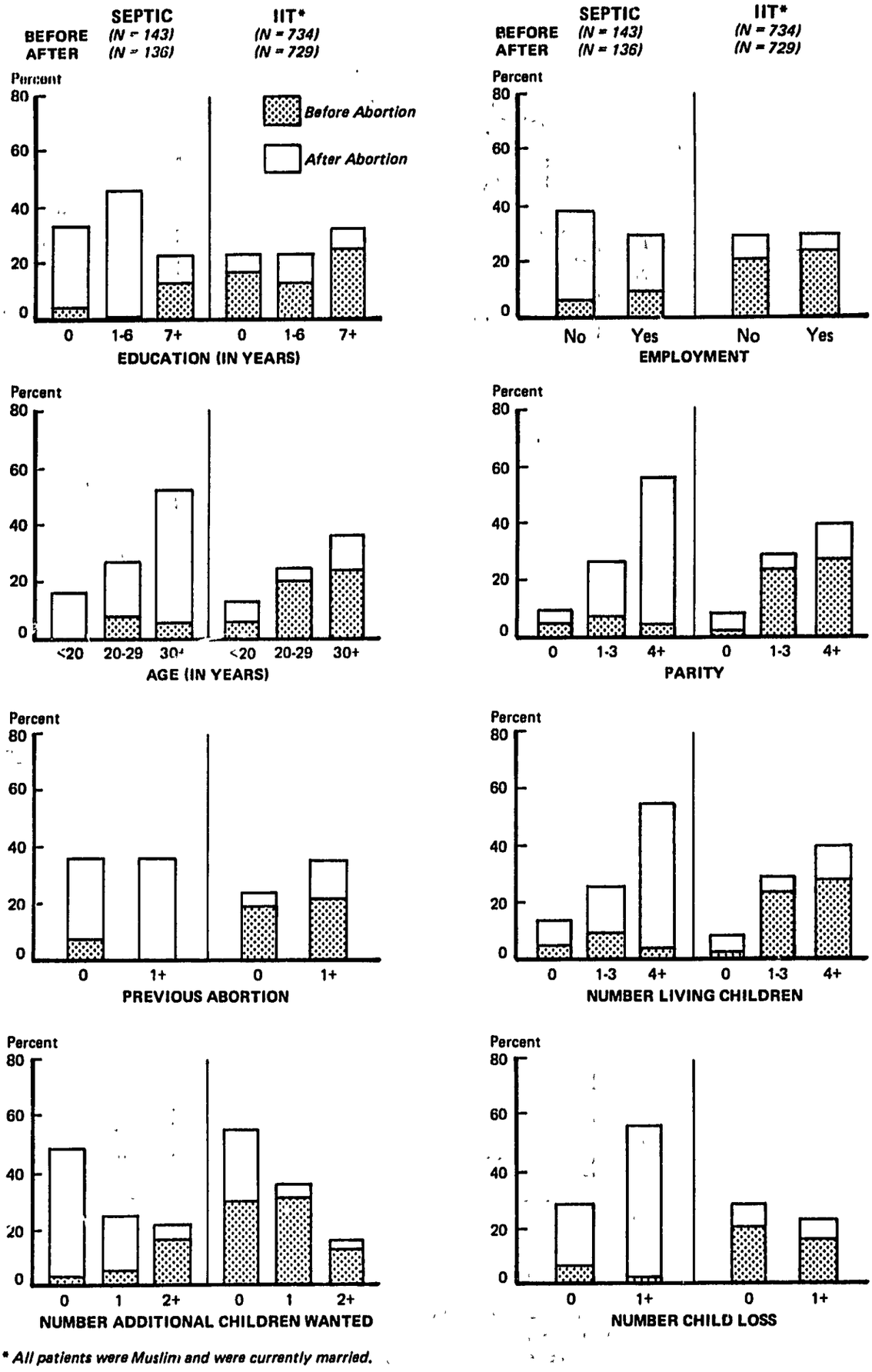
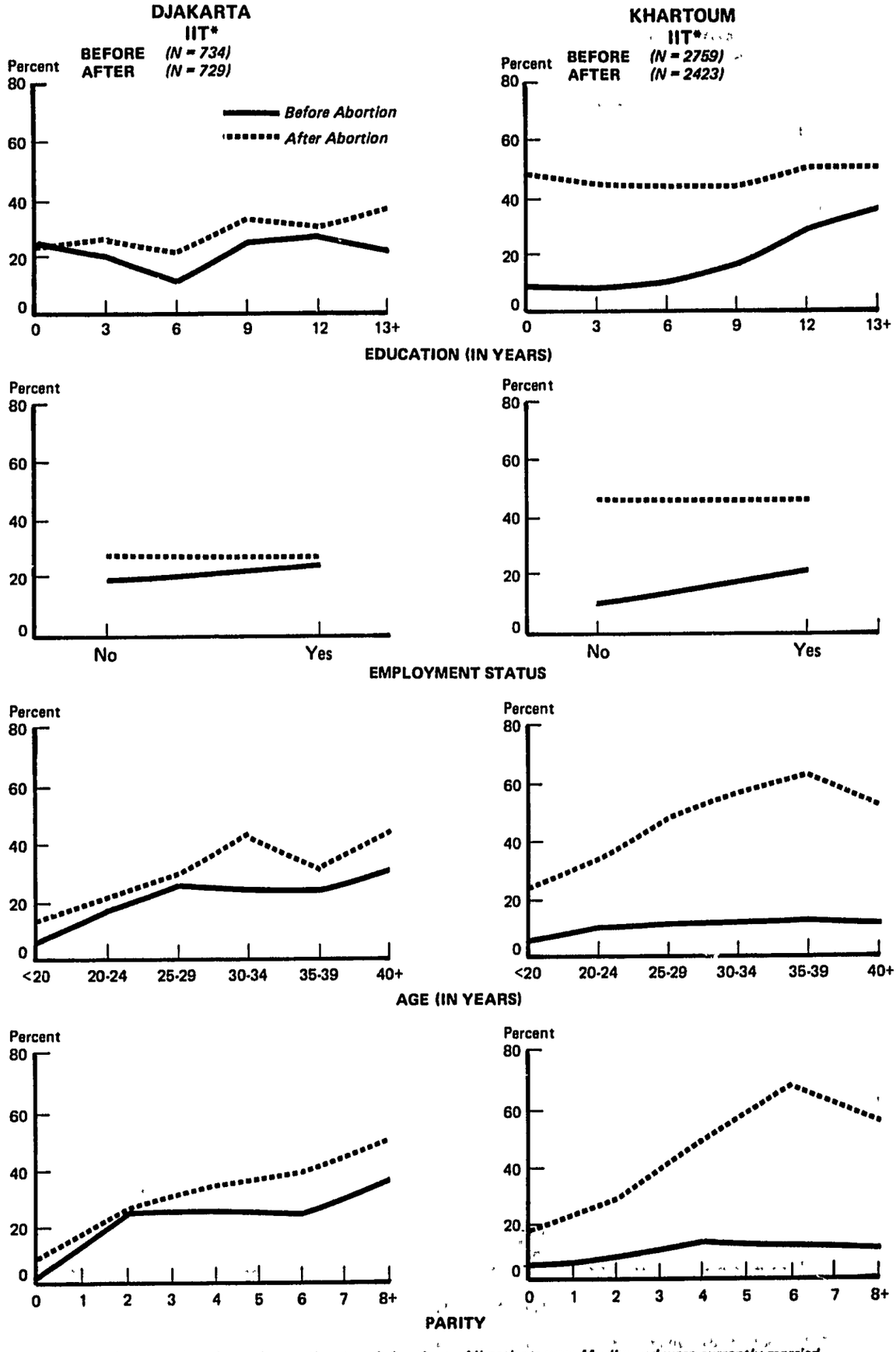
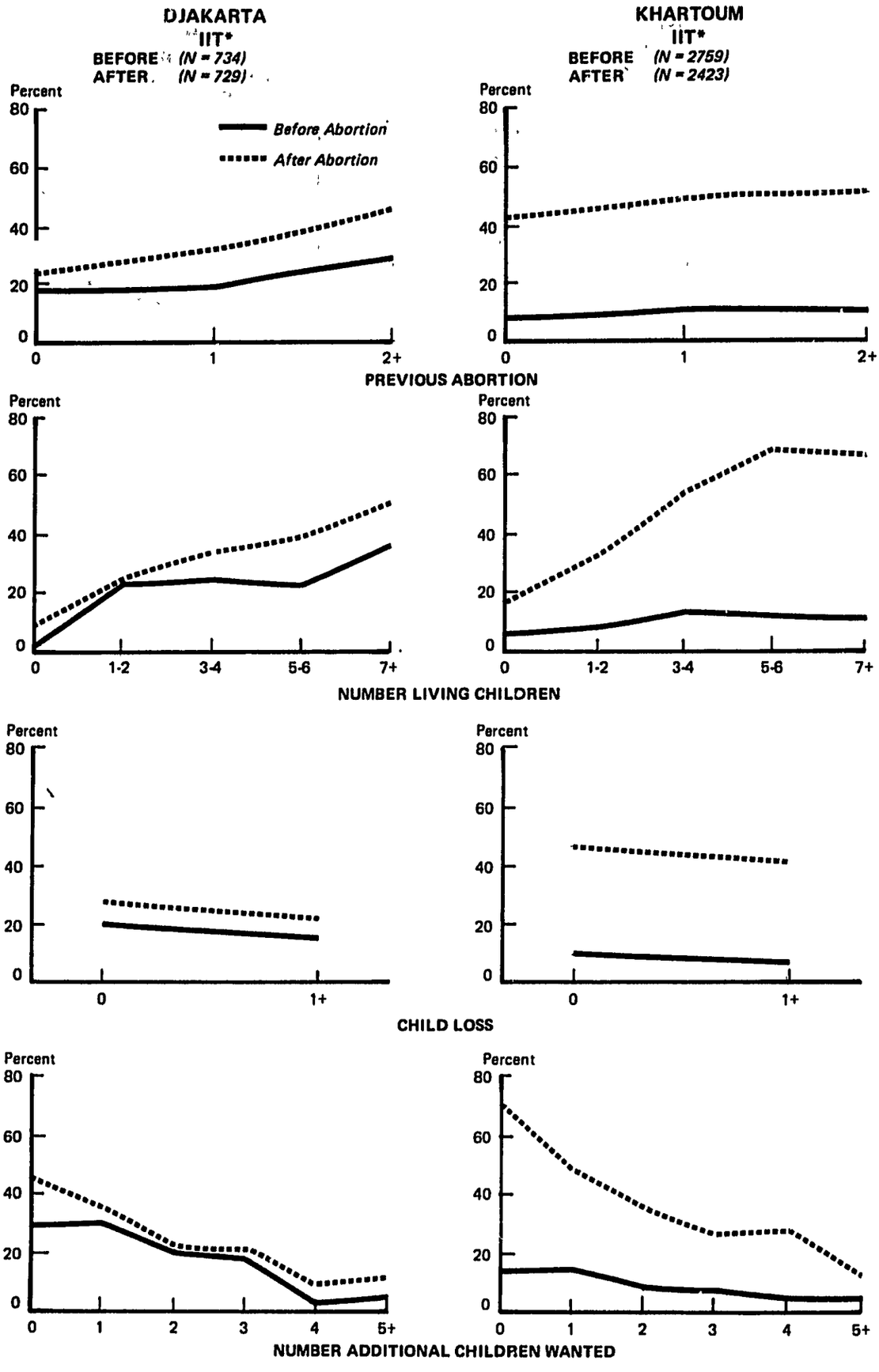


Figure 2. Proportions Practicing Contraception Before and After Abortion by Type of Abortions and by Various Patient Characteristics for Incomplete Abortion Patients* Admitted to Djakarta Hospital (1972-1974).



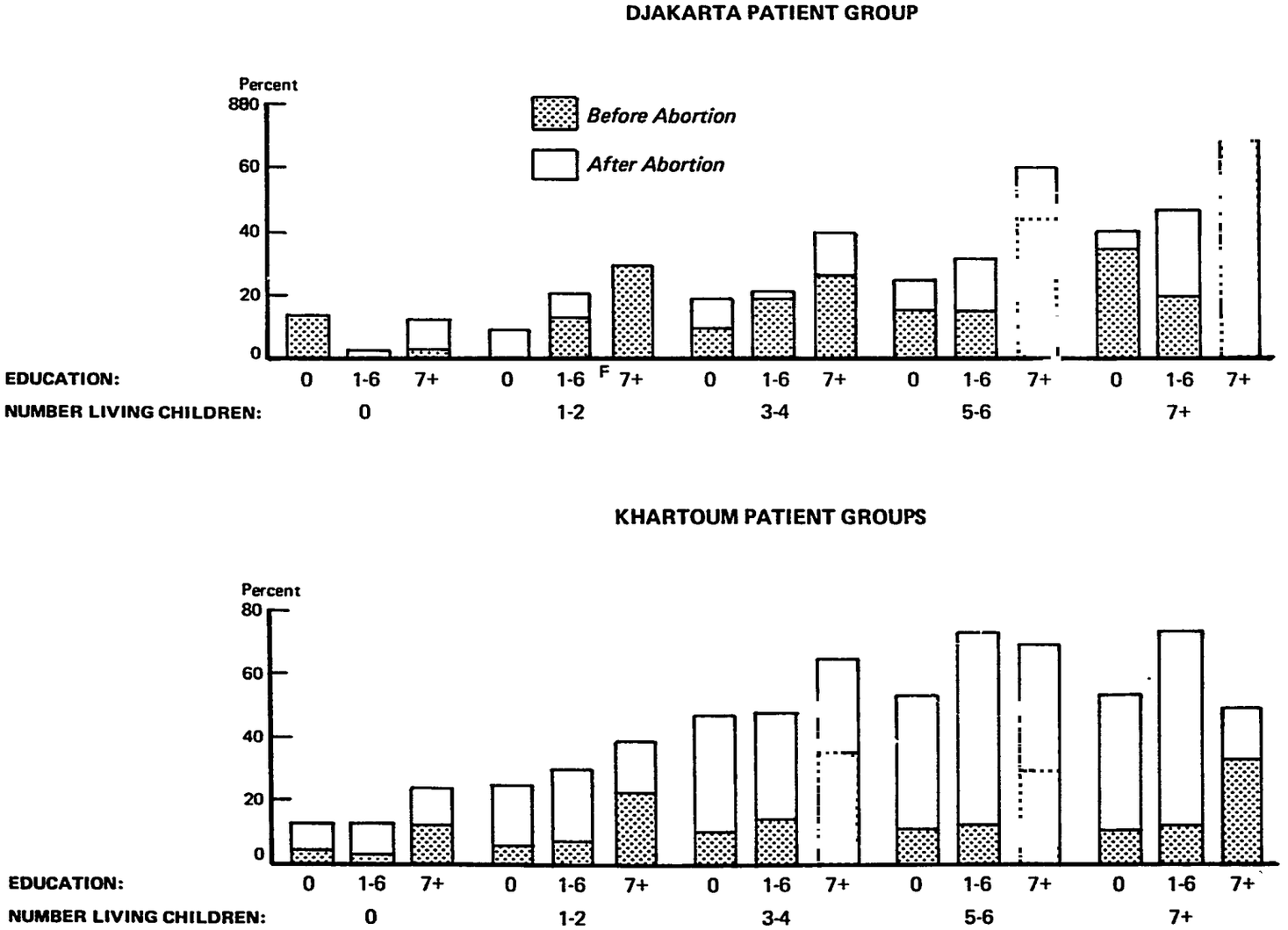
* *IIT = nonseptic incomplete, inevitable, or threatened abortions. All patients were Muslim and were currently married.*

Figure 3a. Proportions Practicing Contraception Before and After Abortion by Patient Characteristics for IIT* Abortion Patients Admitted to Djakarta Hospital (1972-1974) and the Khartoum Hospitals (1974-1975).



* *IIT = nonseptic incomplete, inevitable, or threatened abortions. All patients were Muslim and were currently married.*

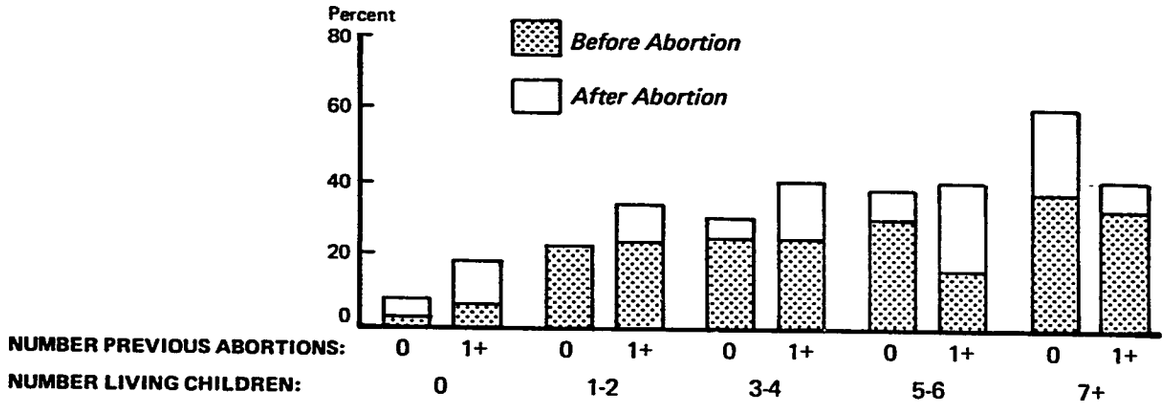
Figure 3b. Proportions Practicing Contraception Before and After Abortion by Patient Characteristics for IIT* Abortion Patients Admitted to Djakarta Hospital (1972-1974) and the Khartoum Hospitals (1974-1975).



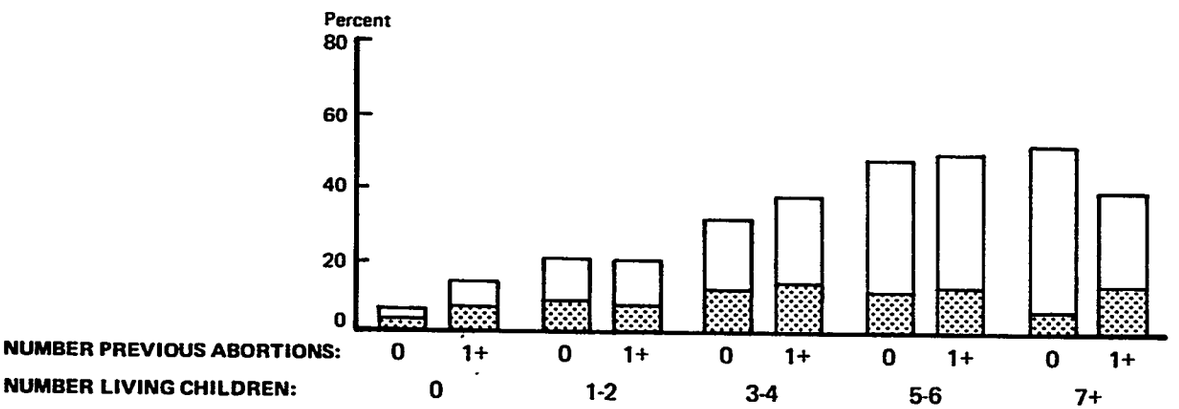
* *All patients were Muslim and were currently married.*

Figure 4. Proportions Practicing Contraception Before and After Abortion by Number of Living Children and by Education of Patients for IIT* Abortion Patients Admitted to Djakarta Hospital (1972-1974) and the Khartoum Hospitals (1974-1975).

DJAKARTA PATIENT GROUP

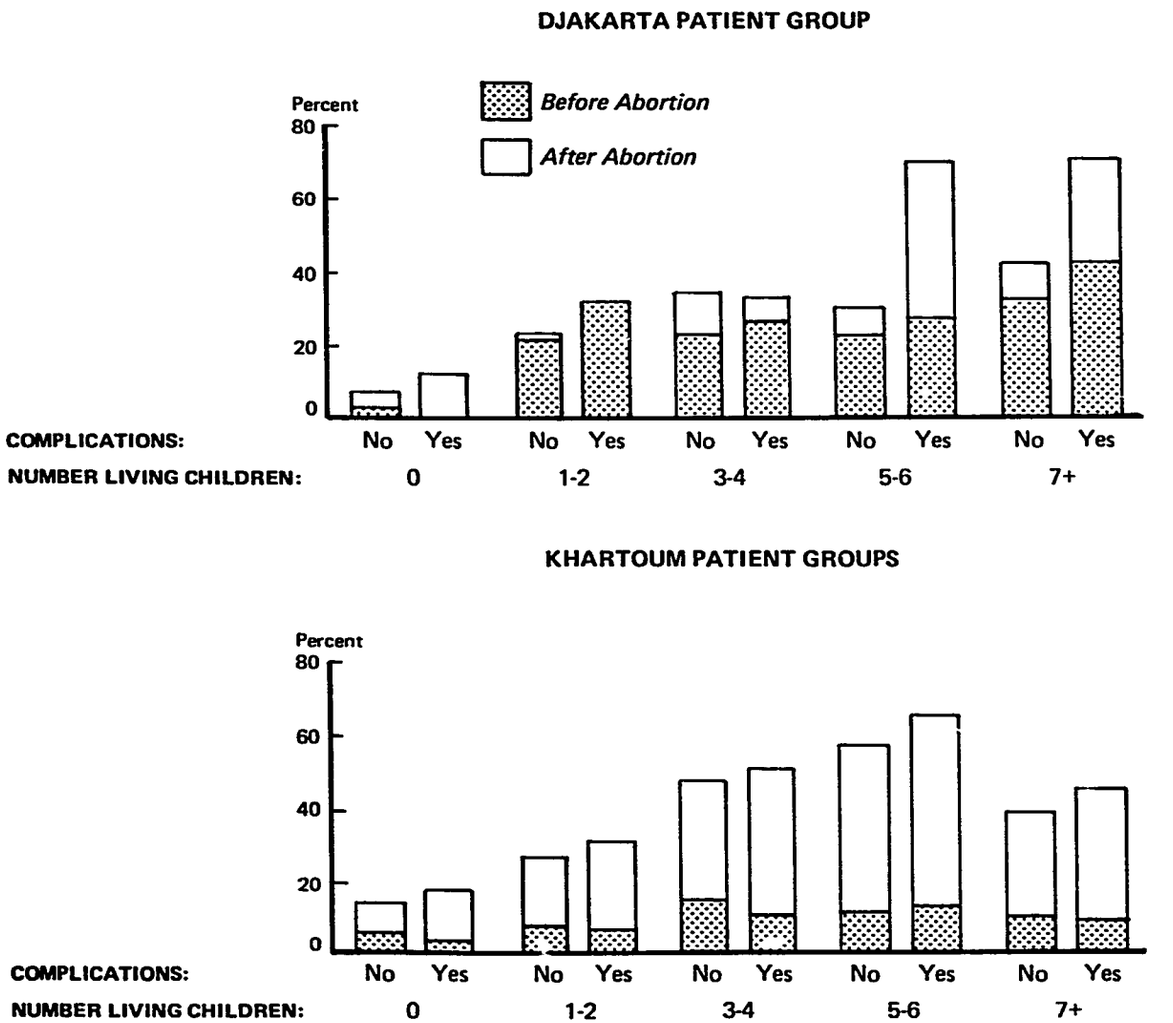


KHARTOUM PATIENT GROUPS



* *All patients were Muslim and were currently married.*

Figure 5. Proportions Practicing Contraception Before and After Abortion by Number of Living Children and by Previous Abortions for IIT* Abortion Patients Admitted to Djakarta Hospital (1972-1974) and the Khartoum Hospitals (1974-1975).



* *All patients were Muslim and were currently married.*

Figure 6. Proportions Practicing Contraception Before and After Abortion by Number of Living Children and by Complications for IIT* Abortion Patients Admitted to Djakarta Hospital (1972-1974) and the Khartoum Hospitals (1974-1975).