Induced Abortion in Matlab, Bangladesh: Trends And Determinants

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Context: *Although many women in Bangladesh resort to abortion when confronted with an unwanted pregnancy, neither the incidence of induced abortion nor the characteristics of women who rely on abortion have been well studied.*

Methods: *Data from a longitudinal demographic surveillance system are used to analyze the outcomes of about 75,000 pregnancies between 1982 and 1991 in Matlab, a rural area of Bangladesh. Outcomes among women in the Matlab treatment area, who have access to an intensive maternal and child health and family planning program, are compared with those among women in a comparable neighboring area who receive the standard government-sponsored services.*

Results: *The ratio of induced abortions to live births increased in both the treatment and comparison areas—from 15 per 1,000 in 1982 to 29 per 1,000 in 1991 in the treatment area and from 12 to 45 per 1,000 in the comparison area. The incidence of abortion was higher among women who had had six or more births or who became pregnant fewer than 12 months after the previous pregnancy. Induced abortion ratios were higher among users of the pill, condoms or traditional methods than among users of injectable contraceptives or among contraceptive nonusers. In most subgroups, women in the treatment area were less likely to have obtained an abortion than were those in the comparison area. Abortion ratios in the treatment area began falling after 1992, and returned to 16 per 1,000 by 1995.*

Conclusions: *A high-quality reproductive health program offering use-effective contraceptive methods can reduce the burden of induced abortion in Bangladesh.*

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In Bangladesh, the law prohibits induced abortion except when a woman's life is endangered by her pregnancy. Village women, however, have long turned to traditional practitioners for abortion, even though the unhygienic methods used in these cases (often involving insertion of foreign bodies, such as roots, into the uterus[1]) may lead to life-threatening complications. Nearly half of admissions to gynecology units of major hospitals in Bangladesh involve abortion-related complications,[2] and community-based studies suggest that 7–16% of maternal deaths are associated with induced abortion.[3]

Since 1979, the practice of menstrual regulation has been permitted in Bangladesh. Menstrual regulation by vacuum aspiration may be performed until the 10th week following a missed menstrual period[4]— usually before the pregnancy is clinically confirmed. (For this reason, the procedure is not legally defined as abortion.) Although menstrual regulation is offered in government clinics and other family planning service centers, the service is not widely available in rural areas.

A village woman seeking menstrual regulation must visit a health and family welfare center, a facility that serves a population of about 4,500 married women of reproductive age. Menstrual regulation is performed there by the family welfare visitor, a female paramedic. Because village women have limited mobility outside the home, often lack transport and may not be aware that menstrual regulation is available, however, health and family welfare centers are not commonly utilized for these services.

All menstrual regulation procedures are supposed to be registered in the health and family welfare center's records. This may also present an obstacle to women's use of these services, out of fear that an "abortion" could become public knowledge. In practice, family welfare visitors often perform menstrual regulation without registering it, in exchange for a fee— even though the procedure is supposed to be provided free of charge, and asking payment for it is basically illegal. Thus, many women choose to obtain abortions from traditional practitioners, as their services are relatively inexpensive and the procedure can be performed at the client's home, in secrecy.

Risk factors for induced abortion in Bangladesh have not been studied very extensively. This is in part because of the lack of reliable data: It is difficult to obtain information on abortion from clients, and service statistics are highly inaccurate. Nonetheless, in this article, we examine trends in abortion and identify groups of women who are at high risk of abortion. The analysis covers about 75,000 pregnancies that occurred during the period 1982–1991 in a rural area of Bangladesh. We also examine contraceptive use prior to and following an abortion.

We hypothesize, first, that the overall incidence of abortion in Bangladesh is increasing, in part because desired family size is declining and in part because even though contraceptive use is increasing, use-effectiveness, service quality and user literacy are all relatively poor. The resulting levels of contraceptive failure and discontinuation probably lead to a high level of induced abortion. Moreover, contraceptive users are in general highly motivated to delay or stop having another child, and may rely on abortion in the case of method failure. Thus, our first aim is to learn if reliance on induced abortion in the study area has changed over time, and to determine how it is related to childbearing goals and contraceptive use in the period prior to the pregnancy.

We also explore briefly a second hypothesis: that abortion incidence may decline as contraceptive use becomes more widespread and as users attain proficiency in the use of a method. Thus, we ex-

amine how induced abortion is affected as women gain access to better services, through the establishment of high-quality reproductive health programs.

Methods

Study Area

Our study was conducted in Matlab, a rural area of Bangladesh located about 50 km south of Dhaka, the nation's capital. Literacy is still relatively low in Matlab (particularly among women), social institutions are predominantly traditional and the people are conservative. Modernizing influences are increasing, however, through access to radio and through commercial contact with urban areas.

Matlab is divided into a treatment area and a comparison area. Since 1977, the treatment area has received a series of health and family planning interventions from the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). In 1996, contraceptive prevalence in Matlab was about 70%, and the total fertility rate had declined to fewer than 3.0 lifetime births per woman.[5] Before 1978, in contrast, contraceptive use was less than 10%, and the total fertility rate was greater than 6.5 births per woman. Infant and child mortality also have declined remarkably: The infant mortality rate declined from 115 deaths per 1,000 live births in 1978 to just above 65 deaths per 1,000 live births in 1996; the under-five mortality rate declined from 200 per 1,000 live births in 1978 to fewer than 90 in 1996.[6]

The Matlab comparison area, in contrast, receives health services on diarrheal diseases only from ICDDR,B and its maternal and child health and family planning services are from the regular government program. Contraceptive use in this area had increased to 47% in 1996, from less than 10% in 1978. The total fertility rate had declined from above 6.5 lifetime births per woman in 1978 to about 3.5 in 1996.[7] Infant mortality and under-five mortality have also declined, from 126 and 204 per 1,000 live births in 1978 to about 65 and 95 per 1,000, respectively.

Data

The Demographic Surveillance System (DSS), which has been maintained by the ICDDR,B since 1966, provided information for the treatment and comparison areas on pregnancy outcomes—live births, miscarriages (spontaneous abortions), induced abortions and stillbirths—as well as on deaths, migrations and marriages. All of these events are registered by health assistants who routinely visit each household once a month. Female community health workers, who make fortnightly visits to every household, also keep such records. The completeness of vital registration in the Matlab DSS is considered to be high.[8] In addition, the contraceptive history of each married woman of reproductive age in the Matlab treatment area was obtained from service statistics data supplied by community health workers.

Definitions

The DSS classifies a pregnancy as having terminated in a live birth if a newborn showed any sign of life—breathing, crying or movement. An infant who showed any sign of life and who then died is classified as a live birth as well as a neonatal death. If the newborn showed no sign of life, the pregnancy is classified as a stillbirth if its duration was seven months or more, or as a miscarriage or spontaneous abortion if it ended spontaneously and was of less than seven months duration. If the pregnancy duration was less than seven months and the pregnancy was terminated through medical or nonmedical means, it is classified as an induced abortion.*

Menstrual regulation is provided by the government health and family planning programs in both areas studied, and the quality of menstrual regulation services in the two areas is the same. (ICDDR,B does not provide menstrual regulation; the service is only offered at the health and family welfare centers.) Since 1989, the DSS has collected information on the types of method used for induced abortions; however, for the period before 1989, the DSS cannot distinguish between menstrual regulation and nonmedical abortion procedures. Data collected during 1989–1991 indicate that about 39% of induced abortions in the treatment area were by menstrual regulation, compared with 36% in the comparison area. Nonmedical procedures included insertion of herbal roots, herbal juice and nonspecific drugs into the uterus.

Analysis

In this article, we compare ratios of the numbers of induced abortions, miscarriages and stillbirths for every 1,000 live births, broken down according to a number of explanatory variables. As potential explanatory variables, we included maternal age, parity, pregnancy interval, contraceptive use prior to the present pregnancy, maternal education, household space (a proxy for household income), study area (treatment vs. comparison), and calendar year of pregnancy termination.

We estimate the net association between an explanatory variable and induced abortion, miscarriage and stillbirth using logistic regression models in which all explanatory variables under consideration were included. In the logistic models, induced abortion, miscarriage and stillbirth were treated as cases but live births were not.

We used proportional hazards models when analyzing contraceptive behavior following pregnancy termination. Analyses involving contraceptive use were restricted to the treatment area, since longitudinal information on contraceptive use in the comparison area was not available.

Results

Factors Affecting Abortion

Over the period 1982–1991, 33,473 pregnancies occurred in the treatment area—30,110 ending in a birth, 1,689 in a miscarriage, 1,064 in a stillbirth and 610 in an induced abortion. In the comparison area, the 41,200 pregnancies ended in 36,254 births, 2,398 miscarriages, 1,365 stillbirths and 1,183 induced abortions. In all, there were 20 induced abortions per 1,000 live births in the treatment area and 33 per 1,000 in the comparison area (Table 1, p. 130). The incidence of miscarriage was slightly lower in the treatment area (56 per 1,000) than in the comparison area (66 per 1,000), while the stillbirth ratio was almost the same in the two areas (35 per 1,000 and 36 per 1,000, respectively).†

Abortion ratios in both the treatment and the comparison areas increased over

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*During their fortnightly visits, the community health workers collect information on pregnancy outcomes. When a pregnancy has ended after less than seven months' gestation, they ask specific questions to help distinguish a miscarriage from an induced abortion.

†The incidence of miscarriage and stillbirth in Matlab is comparable to that found in other populations of Bangladesh that have been under demographic surveillance. For example, during 1982–1991, the miscarriage ratios in Abhoynagar and Sirajgonj thanas, respectively, were 74 and 61 per 1,000 live births, while stillbirth ratios in these areas were 38 and 41 per 1,000 live births (source: Ahmed S et al., *Abortion in Rural Bangladesh: Evidence from the MCH-FP Extension Project*, ICDDR,B Working Paper No. 63, Dhaka, Bangladesh: ICDDR,B, 1996). Two other analyses observed comparable fetal wastage ratios (miscarriages and stillbirths combined) during 1982 and 1983 in Taknaf, Bangladesh (source: Rahman M et al., *Demographic Surveillance System—Taknaf: Vital Events and Migration*, 1982, ICDDR,B Scientific Report No. 65, Dhaka, Bangladesh: ICDDR,B, 1986; and Rahman M et al., *Demographic Surveillance System—Taknaf: Vital Events and Migration*, 1983, Dhaka, Bangladesh: ICDDR,B, 1986). The observed factors associated with miscarriage and stillbirth in Matlab are, to a large extent, similar to those observed previously (source: Mostafa G et al., The relationship between socio-demographic variables and pregnancy loss in a rural area of Bangladesh, *Journal of Biosocial Science*, 1991, 23[1]:55–63).

Table 1. Number of live births, and numbers of induced abortions, miscarriages and stillbirths per 1,000 live births, by year and study area, Matlab, Bangladesh

Year	No. of live births		Abortion ratio		Miscarriage ratio		Stillbirth ratio	
	Treat-ment	Com-parison	Treat-ment	Com-parison	Treat-ment	Com-parison	Treat-ment	Com-parison
Total	**30,110**	**36,254**	**20**	**33**	**56**	**66**	**35**	**36**
1982	2,042	2,417	15	12	40	37	38	36
1983	3,302	4,025	15	20	52	69	35	36
1984	2,987	3,556	19	36	58	79	33	40
1985	3,359	4,046	12	29	52	70	33	35
1986	3,328	3,779	18	27	62	61	39	39
1987	3,383	3,825	20	34	55	70	40	41
1988	3,158	3,959	26	35	54	63	37	31
1989	2,936	3,607	24	41	57	65	28	32
1990	2,951	3,749	27	43	62	72	36	35
1991	2,664	3,291	29	45	74	66	36	38

time (Table 1), from 12–15 abortions per 1,000 live births in both areas in 1982 to 29 per 1,000 in the treatment area and 45 per 1,000 in the comparison area in 1991. In contrast, levels of miscarriage and stillbirth remained about the same in both areas. However, the overall incidence of miscarriage was lower in the treatment area than in the comparison area. The most likely reason for this was the intensive, high-quality maternal health care services provided by ICDDR,B in the treatment area.*

The induced abortion ratio increased with maternal age and parity (Table 2), indicating that the practice of abortion was relatively more common among women who were older or who had a large number of children. In both areas, the likelihood of induced abortion was several times higher if the preceding pregnancy interval was less than 12 months in length than if it was 12 months or longer.

The likelihood of induced abortion increased with maternal education and household space in both areas: Abortion was more common among the better educated and the relatively better-off members of the population. These differentials were larger in the comparison area than in the treatment area.

In the treatment area, women who had used contraceptives in the preceding pregnancy interval were about twice as likely to resort to induced abortion as were women who had not done so (not shown): The induced abortion ratio was 28 abortions per 1,000 live births among contraceptive users, compared with 15 per 1,000 among nonusers. In contrast, the miscarriage ratio was about 10% lower among users than among nonusers (53 per 1,000 vs. 58 per

1,000) and the stillbirth ratio was about 20% lower (30 per 1,000 vs. 38 per 1,000). Women who had used condoms or traditional methods had the highest abortion ratio (61 per 1,000), followed by those who used the pill (36 per 1,000) and the IUD (33 per 1,000). The abortion ratio for injectable users (17 per 1,000) was close to that for nonusers.

Multivariate Analyses
In a logistic regression analysis, we compared odds ratios for induced abortion, miscarriage and stillbirth by explanatory variable (Table 3). The abortion ratio increased sharply and significantly with parity, suggesting that the greater the number of children a woman has, the more likely she is to have an abortion if she becomes pregnant again. The likelihood of induced abortion decreased with the length of the pregnancy interval, implying that women are more likely to choose to have an abortion when pregnancy occurs within a short interval of the previous pregnancy.

The likelihood of induced abortion increased with maternal education as well as with the amount of household space. A higher incidence of miscarriage among Muslims may indicate less use of maternal health services among them than among Hindus.

The incidence of induced abortion was 31% lower in the treatment area than in the comparison area. This may be related to differences in the intensity and quality of maternal and child health and family planning services in the two areas. Contraceptive prevalence is substantially higher in the treatment area than in the comparison area (70% vs. 47%).[9] The lower level of induced abortion in the treatment area supports our hypothesis that the incidence of induced abortion is reduced when the range and quality of health and family planning services is better. Since the regression model included the effects of parity and birth interval, it is highly likely that

the treatment-area variable is capturing the effect of better health and family planning services fairly accurately.

Finally, the variable for the year of pregnancy outcome suggests that during the period 1982–1991, the likelihood of induced abortion increased, on average, by about 9% per year in the Matlab area (Table 3). There were no changes over time in the incidence of miscarriages or stillbirths.

For the most part, the multivariate results agree with the bivariate results presented earlier: Recourse to abortion is more common among higher parity women, those with a shorter interpregnancy interval, women who are more educated and those who are of higher socioeconomic status (i.e., have more household space). The reason for a lower level of miscarriage among older women is not clear; however, higher stillbirth rates among older women are in the expected direction and are consistent with findings from previous research.[10]

Abortion Incidence, 1992–1995
Table 4 shows that there has been a sharp drop in induced abortion and a steady decline in miscarriage in the treatment area during the period 1992–1995. In the comparison area, in contrast, ratios of induced

Table 2. Number of live births and number of induced abortions per 1,000 live births, by social and demographic characteristics, according to study area

Charac-teristic	No. of live births		Abortion ratio	
	Treat-ment	Com-parison	Treat-ment	Com-parison
Maternal age				
<20	4,295	4,702	19	22
20–24	10,934	12,239	11	19
25–29	7,703	9,455	16	27
30–34	4,013	5,296	31	43
35–39	2,286	3,200	38	61
40–44	725	1,176	80	120
≥45	154	186	104	119
Parity				
1	6,866	6,651	13	16
2–3	10,983	11,404	14	20
4–5	6,522	8,515	22	26
6–7	3,391	5,346	34	45
≥8	2,348	4,338	51	90
Pregnancy interval (in months)				
<12	375	577	131	298
12–23	2,703	4,917	37	53
24–35	5,055	9,289	8	8
≥36	5,744	5,060	6	11
Maternal education				
None	17,747	22,984	16	27
Primary	6,851	7,612	25	42
>primary	5,512	5,658	28	45
Amount of household space				
Low	7,387	8,693	16	24
Medium	14,454	18,621	20	33
High	8,269	8,940	25	41

*It is very unlikely that induced abortion was misclassified as miscarriage more frequently in the comparison area than in the treatment area, since in such a case the incidence of miscarriage would have systematically increased in the comparison area as a result of increases in the level of induced abortion over the study period.

Table 3. Odds ratios showing association of induced abortion, miscarriage and stillbirth with social and demographic characteristics (N=74,673)

Characteristic	Induced abortion	Miscar-riage	Stillbirth
Maternal age†	0.92	0.84**	1.12**
Parity			
1	1.00	1.00	1.00
2–3	1.32**	1.04	0.82
4–5	2.02***	0.97	0.89
≥6	5.34***	1.53**	1.33**
Pregnancy interval			
<12 months	1.00	1.00	1.00
12–23 months	0.20**	0.16**	0.26**
≥24 months	0.04**	0.01**	0.03**
Maternal education			
None	1.00	1.00	1.00
Primary	1.57**	1.02	0.94
>primary	2.37**	1.05	0.99
Amount of household space			
Low	1.00	1.00	1.00
Medium	1.45*	1.03	0.96
High	1.49**	0.94	0.99
Religion			
Hindu	1.00	1.00	1.00
Muslim	0.87	1.19*	0.92
Study area			
Comparison	1.00	1.00	1.00
Treatment	0.69**	0.87**	1.00
Year of pregnancy outcome‡	1.09**	1.01	1.00
Constant	*0.00** *	*0.05** *	*0.04** *
–2 log likelihood	*15,571*	*31,017*	*20,573*

*p<.01. **p<.001. †Maternal age is a continuous variable. ‡Calendar year of pregnancy termination is a continuous variable, ranging from 1982=0 to 1991=10. *Note:* Age squared was initially included in the model, but was not statistically significant and was dropped.

abortion, miscarriage and stillbirth have remained stable. The sharp decline in abortion in the treatment area supports our second hypothesis that induced abortion is likely to decline with increased and more efficient contraceptive practice. (In the treatment area, the contraceptive prevalence rate increased from 61% in 1991 to 69% in 1995.[11]) The decline in miscarriage in the treatment area suggests that both increased contraceptive use and maternal health services are steadily decreasing the risk of fetal loss.

Postabortion Contraceptive Use
Finally, we examined contraceptive behavior subsequent to an abortion among women who had had an abortion between 1982 and 1991. We expect that subsequent contraceptive use will be more likely among women who had an abortion than among those who had some other pregnancy outcome. Subsequent contraceptive use within the five years following the index pregnancy was recorded for all

pregnancy outcomes and was modeled in a proportional hazards regression.

The results of the hazards model indicated that contraceptive use was 57% more likely (relative risk of 1.57) for women who had an induced abortion than for those who had a live birth. In contrast, contraceptive use was 44% lower for women who had a miscarriage than for those who had a live birth. The likelihood of contraceptive use did not differ significantly between women who had a stillbirth and those who had a live birth (relative risk of 1.15).

Discussion
Strengths and Limitations
Our analysis has some important strengths: Information on induced abortion was obtained from a high-quality longitudinal vital registration system. In addition, we considered two populations with similar socioeconomic and cultural backgrounds but with different levels of access to health and family planning services, of contraceptive use, and thus of fertility.

On the other hand the data have some weaknesses. For example, some induced abortions may have been reported as miscarriages. However, if this were the case, the incidence of miscarriage would have increased between 1982 and 1991, since induced abortion increased during that period. Our results show no sign of an increased incidence of miscarriage in either of the study areas.

We cannot rule out the possibility that coverage of induced abortions, miscarriages or stillbirths in the Matlab DSS improved over time. If this were the case, however, ratios of all events would have increased, yet miscarriage and stillbirth ratios remained roughly at the same level throughout the study period.

Induced abortions and miscarriages may be underreported, for various reasons. In particular, unmarried women are likely to underreport induced abortion. Although premarital sex (among never-married women) and extramarital sex (among formerly married women) in rural Bangladesh is uncommon, it does occur. Unmarried women are probably most likely to abort a

pregnancy, because bearing children outside marriage is not considered acceptable in the society, and such abortions are probably more likely to go unreported.

Observations
The significant increase over the period 1982–1991 in induced abortion seen in our analysis may be related to an increase over this period in the proportion of women not desiring additional children. Women who have already achieved their desired family size, but who have conceived because of either contraceptive failure or nonuse, may resort to induced abortion. In the comparison area, a substantial proportion of women use traditional methods, condoms and the pill[12]—all methods that can have high use-failure rates in areas where method use-effectiveness, quality of services and user literacy are all relatively poor.[13] Consequently, high method failure rates along with lower contraceptive prevalence rates may have produced relatively high levels of induced abortion.

The increase over time in use of induced abortion was smaller in the treatment area than in the comparison area, and reliance on abortion even appears to have decreased in recent years in the treatment area. This may be related to the higher contraceptive prevalence there, and to women's adoption of more effective contraceptive methods, particularly injectables, as a result of the intensive, high-quality maternal health services available in the treatment area.

We found induced abortion ratios to be more than twice as high among pill and IUD users and about four times as high among users of the condom and of traditional methods as among nonusers. Higher ratios of induced abortion among users of some contraceptive methods appears related to use-failure rates. Previous research has shown that in the Matlab treatment area, 12-month use-failure rates were 1% for injectables, 3% for IUDs and 15% each for the pill and for other methods (condoms and traditional methods).[14]

That users of traditional methods, condoms and even the pill experience such elevated induced abortion ratios has several

Table 4. Number of live births and numbers of induced abortions, miscarriages and stillbirths per 1,000 live births, by calendar year, according to study area

Year	No. of live births		Abortion ratio		Miscarriage ratio		Stillbirth ratio	
	Treat-ment	Com-parison	Treat-ment	Com-parison	Treat-ment	Com-parison	Treat-ment	Com-parison
Total	**10,703**	**12,012**	**24**	**51**	**59**	**65**	**32**	**44**
1992	2,661	3,137	29	51	68	79	31	41
1993	2,616	2,996	28	48	63	68	35	47
1994	2,747	3,018	21	53	56	64	33	44
1995	2,679	2,861	16	50	50	65	29	42

programmatic implications for the reduction of induced abortion in Bangladesh. A contraceptive method-mix geared more toward long-term methods might reduce reliance on induced abortion there. Promotion of injectable contraceptives is called for, given that the level of induced abortion was lowest among users of this method, probably because of its very high use-effectiveness. The maternal and child health and family planning programs should adopt a strategy emphasizing highly use-effective methods, as well as taking into account the costs, risks and benefits associated with these methods.

Another potentially cost-effective way of reducing the burden of induced abortion may be through wider dissemination of information about contraceptives. Maternal and child health and family planning workers should educate and motivate women relying on the pill or condom to use the methods properly and regularly. Women who experience problems could be advised to adopt more effective, longer acting methods.

A specific message, focusing on the need to reduce induced abortion and associated reproductive health risks, might be: A woman can avoid induced abortion by adopting use of an effective contraceptive method; if an abortion is necessary, she should seek the help of a well-trained professional, who can help prevent death, major complications and long-term injuries associated with induced abortion. Such messages could also emphasize the importance of using effective contraceptive methods after an abortion, or of switching to a more effective or even a permanent method, if the woman was already a method user.

The relatively lower level of reliance on induced abortion in the Matlab treatment area suggests that its maternal and child health and family planning programs have proven to be successful in reducing unwanted fertility. Well-designed, well-implemented reproductive health services might help reduce the need for induced abortion elsewhere as well.

References

1. Islam S, Indigenous abortion practitioners in rural Bangladesh, in *Abortion Practitioners in Rural Bangladesh,* Dhaka, Bangladesh: Women for Women Publication, 1981; and Maloney C et al., *Beliefs and Fertility in Bangladesh,* Dhaka, Bangladesh: International Center for Diarrhoeal Disease Research (ICDDR,B), 1981.

2. Measham AR et al., Complications from induced abortion in Bangladesh related to types of practitioners and methods, and impact on mortality, *Lancet*, 1981, I(8213):199–202.

3. Alauddin M, Maternal mortality in rural Bangladesh: the Tangail district, *Studies in Family Planning*, 1986, 17(1):13–21; Chen LC et al., Maternal mortality in rural Bangladesh, *Studies in Family Planning*, 1974, 5(11):334–341; Fauveau V and Blanchet T, Deaths from injuries and induced abortion among rural Bangladeshi women, *Social Science and Medicine*, 1989, 29(9):1121–1127; Khan AR et al., Induced abortion in a rural area of Bangladesh, *Studies in Family Planning*, 1986, 17(2):25–99; and Koenig MA et al., Maternal mortality in Matlab, Bangladesh: 1976–85, *Studies in Family Planning*, 1988, 19(2):69–80.

4. Dixon-Mueller R, Innovation in reproductive health care: menstrual regulation policies and progress in Bangladesh, *Studies in Family Planning*, 1988, 19(3):129–140.

5. Razzaque A et al., *Demographic Surveillance System—Matlab: 1996 Socio Economic Census*, ICDDR,B Scientific Report No. 83, Dhaka, Bangladesh: ICDDR,B, 1998.

6. Mostafa G et al., *Demographic Surveillance System—Matlab: Registration of Demographic Events 1996,* ICDDR,B Scientific Report No. 82, Dhaka, Bangladesh: ICDDR,B, 1998.

7. Ibid.

8. United Nations (UN), *Model Life Tables for Developing Countries,* New York: UN, 1982, p. 325.

9. Razzaque A et al., 1998, op. cit. (see reference 5).

10. Mostafa G, The relationship between sociodemographic variables and pregnancy loss in rural area of Bangladesh, *Journal of Biosocial Science*, 1991, 23(1):55–63.

11. Mostafa G, Demographic surveillance system—Matlab, 1995, early indicators, ICDDR, B internal publications, Dhaka, Bangladesh: ICDDR, B, July 1996.

12. Mitra SN et al., *Bangladesh Demographic and Health Survey, 1993–94,* Dhaka, Bangladesh: National Institute of Population Research and Training; Dhaka, Bangladesh: Mitra Associates; and Calverton, MD, USA: Macro International, 1994.

13. Bairagi R and Rahman M, Contraceptive failure in Matlab, Bangladesh, *International Family Planning Perspectives*, 1996, 22(1):21–25.

14. Ibid.

Resumen

Contexto: *Si bien muchas mujeres de Bangladesh recurren al aborto cuando tienen un embarazo no deseado, aún no se han estudiado a fondo ni la incidencia del aborto inducido ni las características de las mujeres que lo utilizan.*

Métodos: *Se utilizaron datos recabados de un sistema longitudinal de vigilancia demográfica para analizar los resultados de aproximadamente 75.000 embarazos, entre 1982 y 1991, en Matlab, una región rural de Bangladesh. Se compararon los resultados obtenidos de unas mujeres de Matlab, que tuvieron acceso a un programa de planificación familiar con tratamiento intensivo de salud materno-infantil, con otro grupo de mujeres en una zona comparable que recibieron servicios regulares provistos por el gobierno.*

Resultados: *La razón del aborto aumentó tanto en el área del tratamiento como en la zona de comparación—de 15 abortos por 1.000 nacidos vivos en 1982 al 29 por 1.000 en 1991 en el área del tratamiento intensivo, y de 12 abortos por 1.000 nacidos vivos a 45 por 1.000 en la zona de comparación. La incidencia del aborto fue más elevada entre las mujeres que habían tenido seis partos o más, y entre las que habían quedado embarazadas dentro de un período inferior a los 12 meses después del último embarazo. Las razones de aborto inducido fueron más elevadas entre las usuarias de la píldora, del condón o de métodos tradicionales que entre aquellas que usaban anticonceptivos inyectables o las no usuarias. En la mayoría de los subgrupos, las mujeres en la zona de tratamiento eran menos proclives a haber obtenido un aborto que aquellas de la zona de comparación; las razones de aborto en el área del tratamiento comenzaron a disminuir después de 1992 y luego llegaron otra vez a 16 abortos por cada 1.000 nacidos vivos en 1995.*

Conclusiones: *Un programa de salud reproductiva de alta calidad que ofrezca métodos anticonceptivos eficaces puede reducir el número de abortos inducidos en Bangladesh.*

Résumé

Contexte: *Bien que de nombreuses femmes se fassent avorter, au Bangladesh, lorsqu'elles se trouvent confrontées à une grossesse non désirée, ni l'incidence de la procédure, ni les caractéristiques des femmes qui y ont recours n'ont été étudiées en profondeur.*

Méthodes: *Les données d'un système de surveillance démographique longitudinale ont servi à analyser l'issue d'environ 75.000 grossesses entre 1982 et 1991 à Matlab, une région rurale du Bangladesh. Les issues, parmi les femmes de la zone de traitement de Matlab, qui ont accès à un programme intensif de soins maternels, de pédiatrie et de planning familial, sont comparées à celles des femmes d'une zone voisine comparable bénéficiant de services standard subventionnés par l'Etat.*

Résultats: *Le rapport entre les avortements provoqués et les naissances vivantes a augmenté dans les deux zones, de traitement et de comparaison: de 15 pour mille en 1982 à 29 pour mille en 1991 dans la zone de traitement, et de 12 à 45 pour mille dans la zone de comparaison. L'incidence de l'avortement était supérieure parmi les femmes qui avaient déjà connu au moins six accouchements ou qui s'étaient trouvées enceintes moins de 12 mois après leur grossesse antérieure. Les rapports d'avortement provoqué étaient plus élevés parmi les utilisatrices de la pilule, du préservatif et des méthodes traditionnelles que parmi celles de contraceptifs injectables et les femmes qui ne pratiquaient aucune méthode. Dans la plupart des sous-groupes, les femmes de la zone de traitement étaient moins susceptibles d'avoir obtenu un avortement que celles de la zone de comparaison; dans la zone de traitement, les rapports avaient commencé à diminuer après 1992, pour repasser à 16 pour mille en 1995.*

Conclusions: *Un programme de soins d'hygiène de la procréation de haute qualité offrant des méthodes de contraception efficaces peut réduire le problème de l'avortement provoqué au Bangladesh.*