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EDITORIAL

Role of Abortion in Fertility Control

The subject of this commentary is the complex inter-relationship between abortion and contraceptive use in the control of fertility. While both are interventions designed to manage unwanted pregnancy, there are significant differences between the 'preventive' and 'curative' approaches. The significance stems from abortion being a procedure that provokes fundamental and contentious questions about human life, such as when life begins, as well as highlighting the rights of the mother versus the rights of the foetus, and the obligation of governments to protect the unborn child (1).

There is sufficient historical evidence to conclude that no societies have achieved low fertility without recourse to use of some form of contraception together with abortion. So, an important and topical question that arises from this inter-relationship is whether the provision of high-quality contraceptive services can reduce or substitute for abortion. A recent *Lancet* article based on data from the ICDDR,B fieldsite in Matlab supports the substitution argument, at least in the context of Bangladesh (2). These findings are discussed below.

A broader related issue here is whether all societies passing through the demographic transition follow a similar pattern. Such a pattern might hypothetically involve an initial stage where growing awareness of the concept of fertility regulation results in increasing contraceptive use and increasing use of abortion simultaneously, and fertility levels decline from high to intermediate levels. In the second stage of the fertility transition, contraceptive practice becomes more widespread and more efficient (reflected in fewer contraceptive failures), and the resort to abortion decreases, although it may never be completely eliminated.

This hypothesis assumes that the majority of couples would prefer to prevent unwanted pregnancies through contraceptive use rather than through abortion. An alternative hypothesis might be that if abortion is freely accessible, couples would have little incentive to practise responsible contraception. This raises the question of whether the balance between use of abortion and use of contraception depends on the availability of these two interventions.

It is instructive to review what the experiences of developed countries–both European and Asian–reveal about this issue of the balance between these two interventions. In fact, several patterns have been described by Potts *et al.* in their classic text (3). In periods of economic hardship in the late 19th and early to mid-20th centuries, a number of Western and Northern European countries, the United States, and Australia, experienced fertility declines nearly to replacement level well before effective modern contraception was available. The mechanism included resort to illegal abortion and remarkably effective use of inherently-inefficient contraceptive methods, such as withdrawal (*coitus interruptus*), in a social context of nuclear families and late marriage.

In the more eastern countries of Western Europe, such as Romania and Bulgaria, the effective practice of withdrawal had never been widespread, and abortion played the dominant role. In the former USSR–the first country to permit legal abortion (in 1920)–up to 3 of 4 pregnancies were being aborted, at least in Moscow. However, this pattern was not confined to the period prior to the availability of modern contraceptives. In the early 1960s, there were 14 abortions for every delivery in the largest obstetric hospital in Romania. As occurred earlier in the former USSR, the Romanian government restricted the liberal abortion law in 1966. Unfortunately, they also simultaneously restricted access to modern contraception. Consequently, the birth rate tripled from 13 to 40 per 1,000 in less than one year. As is often the case, the restrictive law was bypassed, and skyrocketing resort to illegal abortion brought the birth rate back to 20 within two years.

In Asia, the experience was more similar to that in Western Europe than in Eastern Europe. In response to the post-World War II baby boom, Japan liberalized their abortion law, and abortions quadrupled such that, in the late 1950s, 40% of pregnancies were being aborted. Taiwan experienced a similar rising pattern of abortions. Following the establishment of a national family-planning programme in Korea in 1962, abortions rose rapidly in parallel with rising contraceptive prevalence. China is unique in being the only country that officially

includes abortion as part of the national family-planning campaign. This suggests that the China experience of high abortion rates persisting to the present is not a relevant model to be extrapolated to other societies.

This pattern of abortion rates, rising in parallel with increasing contraceptive use, has been observed in regions as diverse as north Africa (Tunisia and Egypt), Latin America (Venezuela, Colombia, and Chile), as well as other Asian countries as different as Thailand and India. Many of these countries, but not all, registered a peak whereby abortion rates subsequently declined as contraceptive prevalence attained a reasonably high level.

This raises questions as to whether there is an absolute level of contraceptive use that is sufficient in all societies to maintain fertility control without substantial backup through abortion, so that abortions decline without rise in fertility. Or, is the fertility level at which the abortion rate peaks different for each society, presumably related to factors, such as desired family size, and the socioeconomic consequences of unwanted fertility?

In summary, the historical experience is that, in the early stages of fertility decline, abortion almost universally precedes or accompanies rising use of contraception, whether modern or traditional. As Potts, put it: "abortion is the horse that pulls contraceptive practice into the community" (3). As contraceptive use becomes more efficient and attains a substantial level in many societies, abortion rates begin to decline, provided access to contraception is unimpeded. Some societies have, however, continued to rely primarily on abortion to control fertility, usually with negative consequences in terms of maternal morbidity and mortality.

The relevance of the historical experience of the now-developed countries could be questioned on the grounds that contraceptive technology has advanced significantly since the middle of the 20th century. There can be little doubt that overall contraceptive failure rate is now lower than it was before, reducing the need for abortion. However, these advances are not restricted to contraception. Another development had a dramatic effect on the use of abortion. In the 1960s, Harvey Karman, a lay psychologist in California, designed a device, known as the Karman curette or cannula, which permitted evacuation of the uterus without the need for gradual and time-consuming expansion of the cervix, and, thus, without the need for anaesthetics and a lengthy stay in clinic*. This ingenious cheap flexible cannula revolutionized the provision of abortion services, greatly increasing discrete accessibility and reducing risk of damage to reproductive organs. This simple and relatively safe manual evacuation technology (using a 50-mL syringe with the cannula) has now spread across the developing world, and is the major method used in countries like Bangladesh.

Can the Bangladesh experience illuminate this issue of global importance, or is it localized to this particular society, or even to a subsection of Bangladesh society? Firstly, what is the situation in Bangladesh? Legally, abortion is only permitted in Bangladesh to save the life of woman, but menstrual regulation (MR) is legal, provided that pregnancy has not been confirmed and that the procedure takes place soon after the first missed period. Most MR procedures are carried out by Family Welfare Visitors (FWVs), women employed by the Ministry of Health and Family Welfare, with a 6-month training in obstetrics, together with a 12-month training in family planning. Many procedures are also performed by traditional healers (*kabiraj*) and traditional birth attendants (TBAs). For various reasons relating to income generation, the numbers of such procedures tend to be under-reported such that the MR network reports about 100,000 official cases annually. This is widely believed to be an under-estimate by a factor of seven or eight.

Various attempts have been made to estimate the actual level indirectly. Extrapolations from numbers of women admitted to hospital with septic or incomplete abortions have produced an estimate of about 730,000 annually (4). There is, however, anecdotal evidence that, as the experience of FWVs increased and the numbers of cases conducted by traditional abortionists decreased, the proportion of cases requiring hospitalization decreased substantially. A different indirect approach uses the Bongaarts framework to quantify 'residual' fertility prevented by abortion, based on predicted fertility according to patterns of marriage, levels and effectiveness of contraceptive use, fecundity, etc. This analysis supports the level of 700,000-800,000 annually as found in a study (unpublished) by the present author. This is equivalent to about 20% of births, or over half-a-

* The ingenious step taken by Karman was to cut two beveled holes in the opposing sides of the closed tip of the plastic cannula. This minimized blockage and permitted a narrow bore tube to be used effectively for evacuation. The narrow bore (4-6 mm) can pass through the unexpanded cervix without causing damage, and without requiring anaesthetics. It also increased the flexibility of the cannula, thereby reducing risk of uterine wall perforation.

child per woman. If none of these terminations occurred, hypothetically the total fertility rate would be closer to 4 against the current 3.3 children per woman.

As the official national statistics are incomplete and, thus, inadequate to monitor changes in abortion rates, it is not possible from these data to predict whether, or when, abortion rates will decline in response to rising contraceptive prevalence in Bangladesh. The recent article by Rahman *et al*. offers evidence from a carefully-monitored area in Matlab, Bangladesh, showing that abortion rates increased together with rising contraceptive prevalence, then declined once contraceptive prevalence reached a sufficiently high level to prevent most unwanted pregnancies (2). This occurred despite the fact that actual fertility was still about half-a-child above the average desired family size.

Rahman *et al.*'s analysis of longitudinal data for two decades is illuminating. Based on results from two areas of Matlab—comparable in desired family size and differing only in the intensity and quality of family-planning services—it is possible to conclude that, as Bangladesh has passed through a demographic transition, as desired family size has declined, and as the costs of managing unwanted births have increased, the provision of high-quality family-planning services has substituted contraceptive use to prevent unwanted pregnancy in place of abortion as a means of fertility control.

This brings us back to the question: is there an absolute level of either fertility or of contraceptive prevalence (CPR), which triggers a decline in resort to abortion? In the Matlab area with better family-planning services, the plateauing or decline began when CPR reached about one in three couples (early 1980s). Similarly, the abortion rate in the area with low-quality family-planning services also appeared to plateau at around one in three couples (early 1990s).

Importantly, this detailed analysis also shows that, while abortion rate has declined, it has not declined to zero. In the Matlab context of widely-available high-quality contraception services, abortion still accounts for about 2% of pregnancies (compared to 10% or more nationwide), a remarkably low proportion considering that failure of contraceptive use is still a challenge in Bangladesh, and indeed, in most societies. The paper by Bhuiya *et al*. in this issue (5), shows that almost half of women seeking an abortion in Matlab over a period of four months in 1995 were not using any contraception at all prior to the pregnancy. Their conclusion is that pregnancy-prevention services alone cannot be enough, but facilities offering safe abortion will continue to be needed.

Finally, can the Bangladesh experience be extrapolated to other countries? While abortion has undoubtedly made a significant contribution to the dramatic fertility decline in the 1980s, the women in this study had, on an average, less than 0.25 abortions during their lifetimes. This is about ten times lower than in countries, like the former USSR and Cuba, indicating that Bangladesh has never been one of those countries relying heavily on abortion to control fertility. Nevertheless, this pattern probably places Bangladesh in the majority of countries in that contraception, backed up by abortion, allows couples to manage their childbearing aspirations.

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