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CHAPTER 2

Unsafe abortion: The global public health challenge

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LEARNING POINTS

- The World Health Organization defines unsafe abortion as a procedure for terminating an unintended pregnancy either by individuals without the necessary skills or in an environment that does not conform to the minimum medical standards, or both.
- Each year approximately 20 million unsafe abortions occur, primarily in developing countries, and they account for 20% of all pregnancy-related deaths and disabilities.
- A woman's likelihood of having an induced abortion is almost the same whether she lives in a developed country or a developing country. The main difference is safety: abortion is primarily safe in the former and mostly unsafe in the latter.
- Legal restrictions do not eliminate abortion; instead, they make abortions clandestine and unsafe.
- Most induced abortions follow unwanted or unintended pregnancies, which in turn often result from non-use of contraception; method or user-failure of contraception; rape; or such contextual factors as poor access to quality services and gender norms that deprive women of the right to make decisions about their sexual and reproductive health.
- Unsafe abortion and related deaths and suffering are entirely preventable.

Introduction

Each year throughout the world, approximately 205 million women become pregnant and some 133 million of them deliver live-born infants [1]. Among the remaining 72 million pregnancies, 30 million end in stillbirth or spontaneous abortion and 42 million end in induced abortion. An estimated 22 million induced abortions occur within the national legal systems; another 20 million take place outside this context and by unsafe methods or in suboptimal or unsafe circumstances.

When faced with unwanted or unintended pregnancies, women resort to induced abortion irrespective of legal restrictions. In contrast to other medical conditions, ideologies and laws restrict access to safe abortion services, especially in developing countries and among the poorest of poor countries. Information on the incidence of induced abortion, whether legal and safe or illegal and unsafe, is crucial for identifying policy and programmatic needs aimed at reducing unintended pregnancy and addressing its consequences. Understanding the magnitude of unsafe abortion and related mortality and morbidity is critical to addressing this major yet much neglected public health problem.

This chapter focuses on induced unsafe abortions, which carry greater risks than those performed under legal conditions. It provides the latest estimates of the magnitude of the problem including rates, trends, and differentials in unsafe abortion. The links between contraceptive prevalence, unmet need for family planning, and unsafe abortion are described, as well as the mortality and morbidity as a result of unsafe abortion. The chapter concentrates on developing countries, where 97% of unsafe abortions and nearly all related deaths occur. Finally, the chapter describes the international discourse on addressing unsafe abortion.

Definitions and context

The World Health Organization (WHO) defines *unsafe abortion* as a procedure for terminating an unintended pregnancy either by individuals without the necessary skills or in an environment that does not conform to the minimum medical standards, or both [2]. With the advent and expanding use of early medical abortion, this definition may need to be

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modified to incorporate standards appropriate to these less technical methods of pregnancy termination.

Induced abortions may take place within or outside of the prevailing legal framework. When performed within the legal framework, the safety of the procedure depends on the requirements of the law and the resources and medical skills available. In countries that lack human and technical resources, abortions may not be sufficiently safe by international standards although they meet the legal and medical requirements of the country. Legal authorization is, therefore, a necessary but insufficient remedy for unsafe abortion.

Induced abortions outside of the legal framework are frequently performed by unqualified and unskilled providers, or are self-induced; such abortions often take place in unhygienic conditions and involve dangerous methods or incorrect administration of medications. Even when performed by a medical practitioner, a clandestine abortion generally carries additional risk: medical backup is not immediately available in an emergency; the woman may not receive appropriate postabortion attention and care; and, if complications occur, the woman may hesitate to seek care. The risk of unsafe abortion differs by the skills of the provider and the methods used, but it is also linked to the de facto application of the law [3].

More than 60% of the world's population lives in countries where induced abortion is allowed for a wide range of reasons [3]. Nevertheless, some of these countries have a high incidence of unsafe abortion. Current estimates indicate that only 38% of women aged 15 to 44 years live in countries where abortion is legally available and where no evidence of unsafe abortion exists. A number of countries allow abortion on broad grounds, but unsafe abortions still occur outside the legal framework. Abortion has been, for example, legal on request in India since 1972; however, many women are unaware that safe and legal abortion is available. Even those who know of its legality may not have access to safe abortion because of poor quality of services and/or economic and social constraints. Reports also suggest that unsafe abortions may be increasing in several of the newly independent states, formerly part of Russia, as a result of increased fees and fewer services for legal abortions.

Global and regional levels and trends of induced abortion

In 2003, about 3% of all women of reproductive age worldwide had an induced abortion. Overall, the number of induced abortions declined from 46 million in 1995 to 42 million in 2003 (Table 2.1). Most of the decline occurred in developed countries (10.0 million to 6.6 million), with little change evident in developing countries (35.5 million to 35 million).

Induced abortion rates are, however, surprisingly similar across regions (Table 2.1). A woman's likelihood of having an induced abortion is almost the same whether she lives in a developed country (26 per 1,000) or a developing country (29 per 1,000). The main difference is safety: abortion is primarily safe in the former and mostly unsafe in the latter. Latin America, which has some of the world's most restrictive induced abortion laws, has the highest abortion rate (31 per 1,000), but other regions have similar rates: Africa and Asia (29), Europe (28) and North America (21), and Oceania (17).

Induced abortion rates vary by subregion, however (Table 2.2). Eastern Africa and South-East Asia show a rate of 39 per 1,000 women, while other subregions in Africa and Asia

Table 2.1 Global and regional estimated number of all (safe and unsafe) induced abortions and abortion rates, 2003 and 1995.

	Number of abortions (millions)				Induced abortion rate[a]			
	2003		**1995**		**2003**		**1995**	
World	41.6		45.6		29		35	
Developed countries[b]	6.6		10.0		26		39	
Excluding Eastern Europe		*3.5*		*3.8*		*19*		*20*
Developing countries[b]	35.0		35.5		29		34	
Excluding China		*26.4*		*24.9*		*30*		*33*
Africa	5.6		5.0		29		33	
Asia	25.9		26.8		29		33	
Europe	4.3		7.7		28		48	
Latin America	4.1		4.2		31		37	
North America	1.5		1.5		21		22	
Oceania	0.1		0.1		17		21	

[a] Induced abortions per 1,000 women aged 15 to 44 years.

[b] Developed regions were defined to include Europe, North America, Australia, Japan, and New Zealand; all others were classified as developing. Australia, Japan, and New Zealand are nevertheless included in their respective regions.

Table 2.2 Estimated number of safe and unsafe induced abortions and abortion rates by region and subregion, 2003[a].

	Number of abortions (millions)			Abortion rate[b]		
Region and Subregion	**Total**	**Safe**	**Unsafe**	**Total**	**Safe**	**Unsafe**
World	41.6	21.9	19.7	29	15	14
Developed countries[a]	6.6	6.1	0.5	26	24	2
Developing countries	35.0	15.8	19.2	29	13	16
Africa	5.6	0.1	5.5	29	^^	29
Eastern Africa	2.3	^	2.3	39	^^	39
Middle Africa	0.6	^	0.6	26	^^	26
Northern Africa	1.0	^	1.0	22	^^	22
Southern Africa	0.3	0.1	0.2	24	5	18
Western Africa	1.5	^	1.5	27	^^	28
Asia[a]	25.6	15.8	9.8	29	18	11
Eastern Asia[a]	9.7	9.7	^	29	29	^^
South-Central Asia	9.6	3.3	6.3	27	9	18
South-East Asia	5.2	2.1	3.1	39	16	23
Western Asia	1.2	0.8	0.4	24	16	8
Europe	4.3	3.9	0.5	28	25	3
Eastern Europe	3.0	2.7	0.4	44	39	5
Northern Europe	0.3	0.3	^	17	17	^^
Southern Europe	0.6	0.5	0.1	18	15	3
Western Europe	0.4	0.4	^	12	12	^^
Latin America and the Caribbean	4.1	0.2	3.9	31	1	29
Caribbean	0.3	0.2	0.1	35	19	16
Central America	0.9	^	0.9	25	^^	25
South America	2.9	^	2.9	33	^^	33
North America	1.5	1.5	^	21	21	^^
Oceania[a]	0.02	^	0.02	11	^^	11

[a] Japan, Australia, and New Zealand have been excluded from the regional estimates, but are included in the total for developed countries. Numbers, rates, and ratios of Asia, Eastern Asia, and Oceania therefore show results only including developing countries of those regions. The calculations of these regions differ from Table 2.1.

[b] Abortions per 1,000 women aged 15 to 44 years.

^ Less than 0.05.

^^ Less than 0.5.

exhibit rates between 22 and 28 per 1,000. The Caribbean and South America subregions have high rates of 35 and 33 per 1,000. However, the highest abortion rate of all subregions remains in Eastern Europe (44 per 1,000), while the lowest rate is found in the other subregions of Europe (12 to 18 per 1,000). In Europe, most induced abortions are safe and legal and the abortion incidence has been low for decades. The abortion rate has fallen substantially in recent years in Eastern Europe, as contraceptives have become increasingly available. Nevertheless, women continue to rely on induced abortion to regulate fertility to a greater extent in this region than elsewhere.

The distinction among regions becomes more marked when one compares the incidence and proportion of safe and unsafe abortions. In 2003, 48% of all abortions worldwide were unsafe, and more than 97% of these unsafe abortions occurred in developing countries. In Africa and Latin America abortions are almost exclusively unsafe; so are almost 40% of abortions in Asia. Unsafe abortion is rare in Europe. Legal restrictions on abortions have little effect on women's propensity to terminate an unintended pregnancy. Restrictions do, however, lead to clandestine abortions, which, in turn, injure and kill many women.

Estimating unsafe abortions

Since 1990, WHO has been collecting data and estimating the incidence of unsafe abortion [4–7] (Box A). However, estimating the magnitude of unsafe abortion is complex for several reasons. Induced abortion is generally stigmatized and frequently censured by religious teaching or ideologies, which makes women reluctant to admit to having had an induced abortion. Surveys show that underreporting occurs even where abortion is legal [8–12]. This problem is exacerbated in settings where induced abortion is restricted

and largely inaccessible, or legal but difficult to obtain. Little information is available on abortion practice in these circumstances, and abortions tend to be unreported or vastly underreported. Moreover, clandestine induced abortions may be misreported as spontaneous abortion (miscarriage) [13,14]. The language used to describe induced abortion reflects this ambivalence: terms include "induced miscarriage" (*fausse couche provoquée*) [15], "menstrual regulation," and "regulation of a delayed or suspended menstruation [16]." In spite of these challenges, estimates of the frequency of unsafe abortion can be made mainly by using hospital data on abortion complications or abortion data from surveys and validated against the legal context of induced abortion, contraceptive prevalence, and total fertility rate (the average number of children a woman is likely to have by the end of her reproductive years).

Globally, WHO estimates that some 19 to 20 million unsafe abortions occurred each year between 1993 and 2003 [7]. This figure has remained relatively constant despite an increase in contraceptive prevalence during the same period. Although the transition to low fertility with smaller families has become a norm in most countries, family planning has not been able to entirely meet the need of couples to regulate fertility.

Recently published research from sub-Saharan Africa, Southern Asia, and Latin America has improved the precision of the estimates. Although the estimate of the global number of unsafe abortions is close to earlier figures, the regional estimates have changed. For example, the recent estimates for Africa are higher than the previous cautious estimates, better reflecting the actual situation and suggesting that earlier estimates were too low.

Regional differentials in unsafe abortion

Globally, an estimated 1 in 10 pregnancies ended in an unsafe abortion in 2003, giving a ratio of 1 unsafe abortion to about 7 live births [7] (Table 2.3). The unsafe abortion rates or ratios for each region are estimated by dividing the number of unsafe abortions in that region by the regional number of all women aged 15 to 44 years or by the regional number of live births, respectively, in the same reference year (Box A).

Table 2.3 provides the average rates and ratios, that is, relative to women and to births of *all* countries of a subregion, region, or globally, whether unsafe abortion is known to take place (e.g., Kenya) or not (e.g., China) or takes place in parallel to abortions within the framework of the law (e.g., India). However, measures that consider only those countries with reported incidence of unsafe abortion describe its magnitude more adequately. This approach correctly links both numerator (unsafe abortions) and denominator (number of women or number of live births) to the same set of countries in the region or globally. Therefore, Table 2.3 also reports, in parentheses, rates and ratios restricted to *affected* countries (i.e., those with evidence of unsafe abortion), with the number of unsafe abortions, women aged 15 to 44 years and live births referring to the same set of countries. The resultant rates and ratios are higher than those using all countries, better illustrating the

Table 2.3 Global and regional estimates of annual incidence of unsafe abortion in 2003 (Rates and ratios are calculated for all countries and, in parentheses, only for countries with evidence of unsafe abortion.[a])

	Number rounded[b]	Incidence rate per 1000 women aged *15 to 44* years	Incidence ratio per *100* live births
World	19 700 000	14 (22)	15 (20)
Developed countries[c]	500 000	2 (6)	3 (13)
Developing countries	19 200 000	16 (24)	16 (20)
Least developed countries	4 000 000	25	15
Other developing countries	15 300 000	15 (23)	17 (22)
Sub-Saharan Africa	4 700 000	31	16
Africa	5 500 000	29	17
Eastern Africa	2 300 000	39	20
Middle Africa	600 000	26	12
Northern Africa	1 000 000	22 (23)	20 (21)
Southern Africa	200 000	18	18
Western Africa	1 500 000	28	14
Asia[c]	9 800 000	11 (20)	13 (18)
Eastern Asia[c]	◦	◦	◦
South-Central Asia	6 300 000	18	16
South-East Asia	3 100 000	23 (27)	27 (31)
Western Asia	400 000	8 (13)	7 (10)
Europe	500 000	3 (6)	6 (13)
Eastern Europe	400 000	5 (6)	13 (14)
Northern Europe	2 000	0.1 (1)	0.1 (2)
Southern Europe	100 000	3 (6)	7 (14)
Western Europe	◦	◦	◦
Latin America and the Caribbean	3 900 000	29 (30)	33 (34)
Caribbean	100 000	16 (28)	19 (26)
Central America	900 000	25	26
South America	2 900 000	33	38
North America	◦	◦	◦
Oceania[c]	20 000	11	8

[a] Rates, ratios, and percentages are calculated for all countries of each region, except Asia (which excludes Japan) and Oceania (which excludes Australia and New Zealand). Rates, ratios, and percentages in parentheses were calculated exclusively for countries with evidence of unsafe abortion. Where the difference between the two calculations was less than one percentage point, only one figure is shown.

[b] Figures may not exactly add up to totals because of rounding.

[c] Japan, Australia, and New Zealand have been excluded from the regional estimates, but are included in the total for developed countries.

◦ No estimates are shown for regions where the incidence is negligible.

Box A Measurement Indicators

Absolute numbers of unsafe abortions cannot be compared meaningfully across different regions and subregions or over time because of differing size of populations at risk. The choice of a particular descriptive measure is dictated by the purpose of presentation and discussion. The following standardized measures are often used for comparison.

Unsafe abortion rate: The estimated annual number of unsafe abortions per 1,000 women aged 15 to 44 years. This summary measure describes the level (new cases) of unsafe abortion in a given population in a specified time interval. It shows how many women of reproductive age (15 to 44 years) have an unsafe abortion per 1,000 in the same age range during a particular year. Further decomposition of this overall rate by 5-year age-groups allows for ascertainment of age patterns of unsafe abortion as well as the indicator *total unsafe abortion rate*, which describes the average number of unsafe abortions a woman is likely to experience by the end of her reproductive life (generally assumed at 45 years) if the current age-specific rates persist.

Unsafe abortion ratio: The estimated annual number of unsafe abortions per 100 live births. The indicator shows the relative propensity of unsafe abortions compared to live births in a population. By extension, substituting live birth as a proxy for pregnancy, this measure roughly indicates the likelihood that a pregnancy will end in unsafe abortion rather than a live birth.

Unsafe abortion mortality ratio: The estimated annual number of maternal deaths due to unsafe abortion per 100,000 live births. This indicator is a subset of the maternal mortality ratio (number of maternal deaths per 100,000 live births) and measures the risk of a woman dying due to unsafe abortion relative to 100,000 live births.

Unsafe abortion case-fatality rate: This measure refers to the estimated number of maternal deaths per 100,000 unsafe abortion procedures; it is sometimes expressed per 100 procedures. The case-fatality rate shows the mortality risk associated with unsafe abortion.

Percentage of maternal deaths due to unsafe abortion: This measure indicates the estimated number of unsafe abortion deaths per 100 maternal deaths. When maternal mortality is relatively low and where other causes of maternal death have already been substantially reduced, a small number of unsafe abortion deaths may account for a significant percentage of maternal deaths. This measure is, therefore, not particularly suitable for comparison, especially across countries with different levels of maternal mortality.

severity of the public health problem in the countries of a region where unsafe abortions occur.

Unsafe abortion rates close to 30 per 1,000 women aged 15 to 44 years are seen in both Africa and Latin America and the Caribbean; however, because of the higher numbers of births, the unsafe abortion ratio for Africa is only half that for Latin America (Table 2.3). According to recent estimates, the number of unsafe abortions in South America may have reached a peak and begun to decline. If Cuba, where abortion is legally available upon request, is excluded from the calculation, the rate for the Caribbean falls between that for Central America (25 per 1,000) and South America (33 per 1,000). The range of estimates for Africa is wide: eastern Africa has the highest rate of any subregion, at 39 per 1,000, whereas South Africa has among the lowest, at 18 per 1,000 (not counting legal abortions of 5 per 1,000 women). The 1996 law liberalizing abortion in South Africa has clearly reduced the number of unsafe abortions in the subregion. Half of all unsafe abortions take place in Asia; however, rates and ratios are generally lower. Only in South-East Asia are rates and ratios similar to those of Africa and Latin America. South-Central Asia has the highest number of unsafe abortions of any subregion, owing to the sheer size of its population.

The differences in the estimates based on countries *at risk* as compared to all countries in the region (Table 2.3) are particularly marked for Asia. When the populous region of eastern Asia (with abortion available upon request) is excluded from the denominator, the rate rises from 11 to 20 unsafe abortions per 1,000 women aged 15 to 44 years. This pattern is also apparent for the Caribbean (28 vs. 16 per 1,000) when Cuba is excluded. On the other hand, the exclusion of Cuba makes little difference for the rates for Latin America as a whole (30 vs. 29 per 1,000). The differences in South-East Asia (27 vs. 23 per 1,000) and western Asia (13 vs. 8 per 1,000) are the result of excluding Singapore and Vietnam, and Turkey, respectively, from the calculations.

The ratio of unsafe abortion generally ranges from 10 to 20 unsafe abortions per 100 births (Table 2.3). However, when declining fertility results in fewer and fewer births without an accompanying major shift from unsafe abortion to modern contraceptive uptake, ratios become high. Also, where the motivation is stronger to end an unwanted or unintended pregnancy through abortion rather than unwanted birth, the ratio would be higher. Such is the case in South America (38 per 100), Central America (26 per 100), the Caribbean (26 per 100 for all countries vs. 19 per 100 for countries at risk) and South-East Asia (31 per 100 for all countries vs. 27 per 100 for countries at risk).

The global figures in Table 2.3 show the full effect of restricting the analysis appropriately only to the relevant countries with evidence of unsafe abortion. The 19.7 million unsafe abortions that occurred worldwide in 2003 correspond to an unsafe abortion rate of 22 per 1,000 women aged 15 to 44 years when only countries with unsafe abortion are considered versus 14 per 1,000 when the rate is

based on all countries. The respective change in the abortion ratio is 20 versus 15 per 100 live births. For developing countries, the rate increases from 16 to 24 per 1,000 women of reproductive age when only countries at risk are considered. The few developing countries with liberal abortion laws and no evidence of unsafe abortion (e.g., China, Cuba, Turkey, and Singapore) all fall in the group of "other developing countries," leading to a marked difference in the incidence rate and ratio. The least developed countries show a high unsafe abortion rate of 25 per 1,000 women.

In short, the alternative figures presented in parentheses in Table 2.3 reveal where unsafe abortion is clearly a major public health concern. These figures are alarming and require urgent attention by policy makers and program managers.

Unsafe abortion trends by region

Rates and ratios of unsafe abortion vary widely by region (Fig. 2.1). For the sake of comparability with the previous estimates, the rates are for women aged 15 to 49 years and for all countries of each region. The comparisons are illustrative of trends, but 1993 estimates are less credible than 2003 estimates; for example, the latest research evidence from Africa shows higher rates of unsafe abortion than previously believed probable. The 2003 estimates more accurately reflect the current situation in Africa; thus, the increases may be less accentuated than those indicated in Fig. 2.1. Eastern, middle, and western Africa show separate patterns in a high fertility setting. The rate for eastern Africa is notable, increasing to more than 35 per 1,000 women aged 15 to 49 years as use of contraception has remained low (around 20%) in the region; the ratio has decreased because of a less significant increase in unsafe abortion than in births. Aside from Africa, the rates mostly show a slow decline while ratios have increased; however, the trend in ratios is less marked.

The interpretation of trends in unsafe abortion ratios is not straightforward because it is a composite index of the degree of motivation to terminate an unwanted pregnancy by induced abortion as well as the trends in unsafe abortion relative to live births. With the increasing motivation to regulate fertility, the unsafe abortion ratio increases.

Notwithstanding the complex relationship between trends in fertility and trends in unsafe abortion ratios, two main patterns emerge (Fig. 2.1). The first is represented by South America, and also includes Central America, the Caribbean, and South Africa, where fertility has declined to around 2.5 children per woman. South Africa nevertheless is distinct with legal, safe abortion increasingly replacing unsafe abortion. However, the case of South America is striking: the unsafe abortion ratio is still very high in spite of a rise in the prevalence of modern contraceptives from 50 to 65%, with more than half of the modern method use attributable to

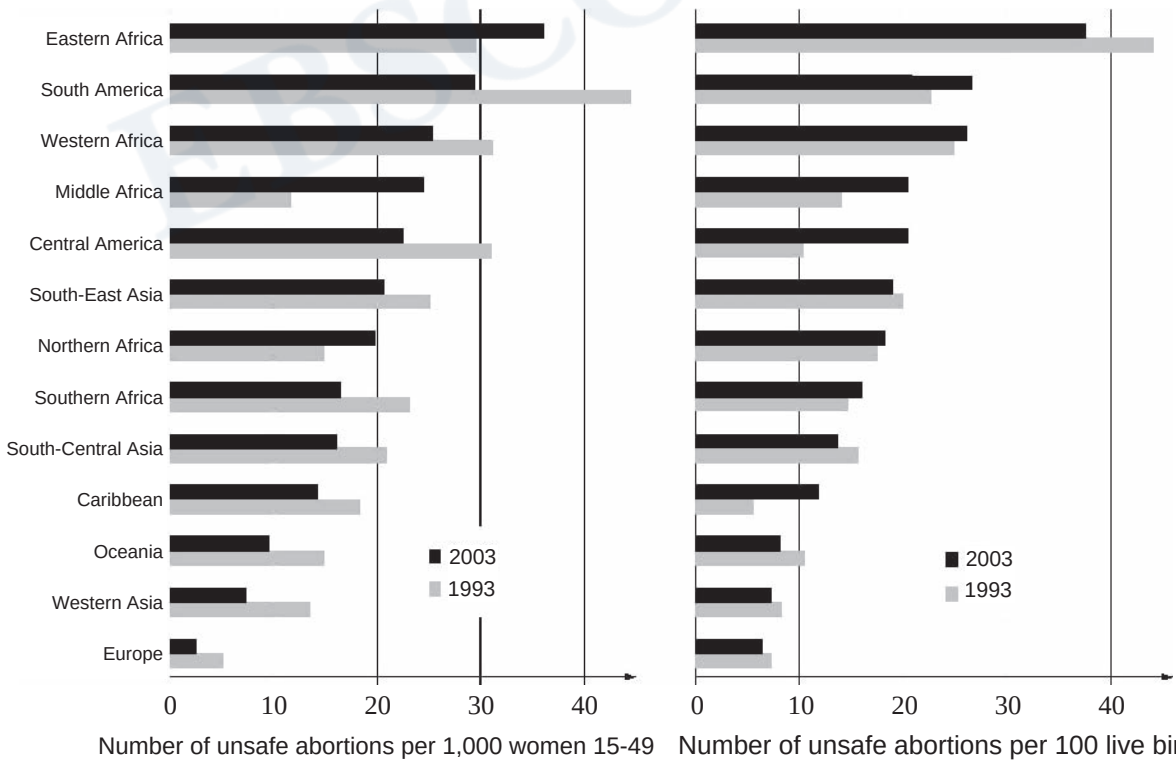

Figure 2.1 Trends in unsafe abortion rate (per 1,000 women aged 15 to 49 years) and ratio (per 100 births), 1993 and 2003 (From WHO, 1994 [4], WHO, 2007 [7].)

Table 2.4 Percent of women using a contraceptive method by type of method used in 2005 and unsafe abortion rate and ratios in 2003. (Unsafe abortion rates and ratios are calculated for all countries of each region.[a])

	Contraceptive use (% of women in union)					Unsafe abortion incidence	
	Any method	Any modern method	Reversible modern methods	Female and male sterilization	Any traditional method	Rate per 1,000 women 15 to 44	Ratio per 100 live births
World	61	54	30	24	7	14	15
Developed countries	69	55	40	15	13	2[b]	3[b]
Developing countries	59	54	28	26	6	16	16
Africa	27	20	18	2	7	29	17
Eastern Africa	22	17	15	2	5	39	20
Middle Africa	23	5	4	1	18	26	12
Northern Africa	47	42	40	2	5	22	20
Southern Africa	53	51	36	16	1	18	18
Western Africa	15	8	7	0	7	28	14
Asia	63	58	30	29	5	11[b]	13[b]
Eastern Asia	82	81	43	38	1	◦	◦
South-Central Asia	48	41	13	28	7	18	16
South-East Asia	57	49	42	8	8	23	27
Western Asia	47	28	25	3	19	8	7
Europe	67	49	42	7	18	3	6
Eastern Europe	61	35	33	3	26	5	13
Northern Europe	79	74	50	25	5	0	0
Southern Europe	67	46	38	8	21	3	7
Western Europe	74	71	65	6	4	◦	◦
Latin America and the Caribbean	71	62	29	32	9	29	33
Caribbean	60	57	35	22	4	16	19
Central America	64	55	27	28	9	25	26
South America	74	65	30	35	9	33	38
North America	76	71	33	38	5	◦	◦
Oceania	62	57	28	29	4	3[b]	4[b]
Australia/New Zealand	76	72	35	37	4	◦	◦
Melanesia	27	21	13	8	6	10	8

[a] See footnotes and text with Table 2.3.

[b] Japan, Australia, and New Zealand have been excluded from the regional estimates of unsafe abortion, but are included in the total for developed countries.

◦ No estimates are shown for regions where the incidence is negligible.

sterilization to terminate childbearing (Table 2.4). Nonetheless, an unmet need for spacing births appears to be met through unsafe abortion. The decline in regional numbers of births is because of the increasing tendency to regulate fertility by either contraceptive use or unsafe abortion. The speed of decline in fertility has outstripped the decline in unsafe abortion, thus accounting for relatively higher ratios.

South-East Asia and South-Central Asia (and to some extent western Asia and Oceania) represent the other pattern of moderately high fertility of around three children per woman and less than 50% modern contraceptive method use. A moderate decline in the unsafe abortion rate is noticed with little change in the ratio relative to live births. The trend in western Asia is less clear, because available data are generally limited.

Who is more likely to have an unsafe abortion?

All sexually active (including sexually coerced) fertile women face some risk of unintended pregnancy and, consequently, of induced abortion or unwanted birth. Contrary to the commonly held view, most women seeking abortion are married or live in stable unions and already have several children. Some have an induced abortion to limit family size and some to space births [17–22]. Where abortion is highly restricted, educated affluent women can often successfully obtain an abortion from a qualified provider,

whereas poor women or those who have little or no education lack this option [23,24]. Policy makers and program managers often need to know if certain groups require particular attention for prevention of unplanned pregnancy and unsafe abortion. Because of the limited data, however, socioeconomic and demographic differentials in unsafe abortion by marital status, education, income, work participation, type of occupation, urban-rural place of residence, ethnicity, and parity are difficult to document.

Contraceptive methods remain inaccessible or limited in choice for married women in some countries. However, access to contraception is worse for unmarried women, particularly adolescents. The age patterns of unsafe abortion reveal these most vulnerable groups. A recent review found that two-thirds of unsafe abortions occur among women aged 15 to 30 years [25]. More importantly from a public health perspective, 2.5 million, or almost 14%, of all unsafe abortions in developing countries occur among women younger than 20 years of age.

Unsafe abortions show a distinct age pattern by region (Fig. 2.2). The proportion of women aged 15 to 19 years in Africa who have had an unsafe abortion is higher than in any other region; almost 60% of unsafe abortions in Africa occur among women younger than 25 years old, and almost 80% are among women younger than 30 years of age. This situation contrasts with Asia, where 30% of unsafe abortions occur among women less than 25 years old and 60% are among women less than 30 years old. In Latin America and the Caribbean, women aged 20 to 29 years account for more than half of all unsafe abortions, with almost 70% of unsafe abortions occurring among women younger than 30 years old, demonstrating an age pattern between those for Africa and Asia. Interventions need to be tailored to the specific regional age pattern of unsafe abortion, although prevention of unsafe abortion at all ages should remain a high priority.

Contraceptive use, unmet need for family planning, unplanned pregnancy, and unsafe abortion

Induced abortion is linked to the level and pattern of contraceptive use, unmet need for family planning, and, consequently, to the level of unplanned pregnancy. Nearly 40% of pregnancies (or about 80 million) worldwide are unplanned, the result of non-use of contraceptives, ineffective contraceptive use, method failure, or lack of pregnancy planning. Indeed, one in four of the world's 133 million births is reported to be "unwanted" or mistimed.

Unintended pregnancy and induced abortion can be reduced by expanding and improving family planning services and choices and by reaching out to communities and underserved population groups, including sexually active teenagers and unmarried women. Furthermore, any abortion, whether initiated within or outside the official health system, should be accompanied by appropriate family planning services.

Even when people are motivated to regulate their fertility, unplanned pregnancies will occur if effective contraception is largely inaccessible or not consistently or correctly used. Many married women in developing countries do not have access to the contraceptive methods of their choice [26–29]. The situation is even more difficult for unmarried women, particularly adolescents, who rarely have access to information and counseling on sexual and reproductive health and are frequently excluded from contraceptive services. An estimated 123 million women have an unmet need for family planning [30]; that is, they want to limit or space childbearing but are not using any method of contraception.

The reasons for the continuing high level of unmet need are numerous and complex. They range from such contextual factors as gender norms that deprive women

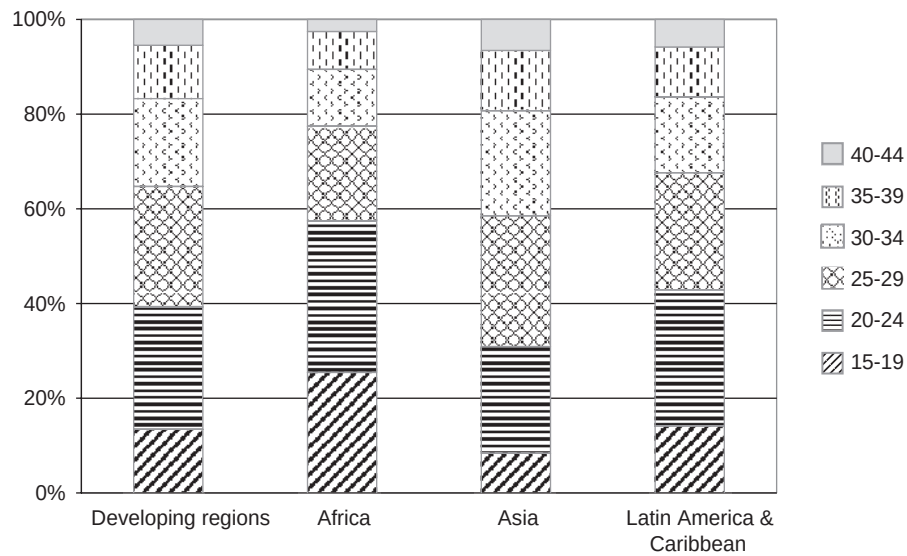

Figure 2.2 Percent distribution of unsafe abortion by age-group (years), by region (From WHO [7].)

of the decision-making power to use contraceptives and poor access to quality services to side effects and health concerns perceived or experienced by using a certain method.

As countries transition from high to low fertility, contraceptive services are often unable to meet the growing demand of couples for fertility regulation [31]. This situation results in an increased number of unplanned pregnancies, some of which are terminated by induced abortion. Also, where less effective family planning methods (e.g., withdrawal or fertility awareness-based methods) are commonly used, unplanned pregnancies are likely to result. Each year an estimated 27 million unintended pregnancies occur as a result of method failure or ineffective use; of these, about 6 million occur although the contraceptive method has been used correctly and consistently [32].

Increases in contraceptive prevalence and in the use of effective contraceptive methods are associated with a reduced incidence of induced abortion over time [33]. Using the time series data from developed countries, Marston and Cleland [34] noted that the onset of fertility decline in some countries was characterized by simultaneous increases in both abortion and contraceptive use. Contraceptive use alone was not sufficient to meet the growing demand for fertility regulation and, therefore, recourse to induced abortion increased. In other countries, abortion declined with an increase in contraceptive use. More recently, the increases in contraceptive use in Eastern Europe have resulted in falling abortion rates. Thus, with expanding and sustained high levels of contraceptive use, abortion rates fall. Current estimates of unsafe abortion and contraceptive use by fertility level in developing countries demonstrate similar trends [35].

Table 2.4 shows the percentage of women using contraceptive methods by type of method and abortion rate and ratios globally and by region. No clear pattern emerges between contraceptive prevalence and unsafe abortion rate or ratio by region because of the varying types of methods used with their associated risks of contraceptive failure and the contraceptive options available.

For example, Middle, Western, and Eastern Africa all have a contraceptive prevalence of less than 25%, with heavy reliance on traditional methods that are associated with high failure rates. In Southern and Northern Africa, contraceptive prevalence among married women is around 50% and more couples rely on reversible modern methods (36% and 43%, respectively). This difference explains the moderate abortion rates of around 20 per 1,000 women in Southern and Northern Africa, as compared to 26 to 39 per 1,000 in other parts of Africa.

In Latin America, the prevalence of modern contraceptives ranges from 57 to 65%; however, 40 to 54% of use is attributable to female sterilization (male sterilization is low). The moderate (around 30%) prevalence of reversible method use could mean that women rely on unsafe abortion for spacing purposes before achieving the desired level of fertility and opting for sterilization. Improved access to a range of birth-spacing methods could, therefore, reduce the number of unintended pregnancies and hence the need for unsafe abortion for spacing childbearing.

Use of modern contraceptive methods among married women is modest (41%) in South-Central Asia, and sterilization represents two-thirds of this use. Given the low prevalence of spacing methods, the high number of unsafe abortions in the region may be a response to the desired spacing of childbearing. Nevertheless, among Asia's subregions, South-East Asia has the highest unsafe abortion rate, at 27 per 1,000 women aged 15 to 44 years (excluding countries with no evidence of unsafe abortion); this rate is similar to those of the Caribbean and Central America. South-East Asia has a 49% prevalence of modern family planning methods, almost exclusively of reversible methods (42%). It appears, though, that abortion is used to keep fertility low.

Unsafe abortion-related mortality and morbidity

Each year more than 5 million women having an unsafe abortion (about one in four) experience complications, placing heavy demands on scarce medical resources [36]. Mortality because of unsafe abortion is estimated from the total maternal mortality level. The estimated number of maternal deaths as a result of unsafe abortion ranges between 65,000 and 70,000 deaths per year. This corresponds to one woman dying because of a botched abortion approximately every 8 minutes.

The most recent estimate (for 2003) shows that nearly all deaths attributable to unsafe abortion occur in developing countries (Table 2.5). In eastern, western, and middle Africa, where maternal mortality is high, the unsafe abortion-related mortality ratio is higher than anywhere else, double that of Asia and more than five times that of Latin America. Morbidity is an even more frequent consequence of unsafe abortion; the disease burden for Africa is exceptionally high, threatening women's lives and health and straining scarce resources.

An estimated 2,000 deaths from unsafe abortion occurred in Latin America in 2003, approximately 20 per 100,000 births. This mortality ratio is the lowest among the developing regions and is attributable to both the methods used to initiate an abortion and to the relatively well-functioning health services. The widespread use of misoprostol to induce abortion in Latin America has been associated with fewer complications and relatively safer, although illegal, induced abortion in the region [37,38]. The unsafe abortion-related mortality for Asia is two to three times that for Latin America but less than half that for Africa, reflecting the relative standards of health services and infrastructure.

Table 2.5 Global and regional estimates of mortality as a result of unsafe abortion in 2003. (Percentages and ratios are calculated for all countries of each region.[a])

	Mortality due to unsafe abortion		
	Number of deaths rounded[b]	**% of all maternal deaths**	**Mortality ratio per 100,000 live births rounded[b]**
World	66,500	13	50
Developed countries*	<60	4	◦
Developing countries	66,400	13	60
Least developed countries	24,000	10	90
Other developing countries	42,400	15	50
Sub-Saharan Africa	35,600	14	120
Africa	36,000	14	110
Eastern Africa	17,600	17	160
Middle Africa	5,000	10	100
Northern Africa	1,100	11	20
Southern Africa	300	9	20
Western Africa	11,900	13	110
Asia[c]	28,400	12	40
Eastern Asia[c]	◦	◦	◦
South-Central Asia	24,300	13	60
South-East Asia	3,200	14	30
Western Asia	1,000	11	20
Europe	<60	6	1
Eastern Europe	<50	6	2
Northern Europe	◦	3	◦
Southern Europe	◦	11	1
Western Europe	◦	◦	◦
Latin America and the Caribbean	2,000	11	20
Caribbean	200	12	30
Central America	300	11	10
South America	1,400	11	20
North America	◦	◦	◦
Oceania[c]	<100	10	20

[a] See footnotes and text with Table 2.3.

[b] Figures may not exactly add up to totals because of rounding.

[c] Japan, Australia, and New Zealand have been excluded from the regional estimates of unsafe abortion, but are included in the total for developed countries.

◦ No estimates are shown for regions where the incidence is negligible.

Case fatality rates by region

The estimated case-fatality rates of unsafe abortion [7] range from a high of 750 per 100,000 procedures in sub-Saharan Africa to 10 in developed regions, with an average of 350 for developing regions (Table 2.6). The risk of death as a result of unsafe abortion procedures is the highest in Africa at 650 per 100,000, followed by Asia at 300 per 100,000. The global case-fatality rate associated with unsafe abortion is some 550 times higher than the rate associated with legal and safe induced abortions in the USA (0.7 per 100,000 procedures) [39]; in sub-Saharan Africa, the rate is more than 1,000 times higher.

Table 2.6 Case-fatality rate of unsafe abortion per 100,000 unsafe abortion procedures, 2003.

	Estimated number of deaths per 100,000 unsafe abortion procedures (rounded)
World	300
Developed countries	10
USA	<1
Developing countries	350
Least developed countries	600
Other developing countries	300
Sub-Saharan Africa	750
Africa	650
Asia	300
Latin America and the Caribbean	50
Oceania	300

The high risk of death from unsafe abortion in Africa (Table 2.6 and Fig. 2.3) reflects the procedures used and the poor availability, accessibility, and quality of services for management of complications. In middle, western, and eastern Africa, dangerous abortion methods, failing infrastructure, and poor public health facilities result in estimated case-fatality rates of around 800 per 100,000 procedures. In contrast, South and Central America have case-fatality rates lower than 100 per 100,000 as a result of better infrastructures for health services and wider use of misoprostol [37,38]. For Southern and Northern Africa and South-East Asia, the rates appear low but are still almost 200 times higher than that associated with a legal and safe abortion in the USA.

The global health burden of unsafe abortion: death and disability

For each woman who dies, many others suffer infections, bleeding, damage to bowel and reproductive tract organs, and secondary infertility. Investigators recently measured the disease burden using disability-adjusted life years (DALYs) (Åhman E, Mathers CD, Shah IH (2005) *Death and Disability Due to Unsafe Abortion: Global and Regional Estimates* [unpublished]). The DALY combines years of life lost from premature death and years of life lived with disabilities in a single indicator, allowing assessment of the total loss of health from different causes. One lost DALY can be thought of as one lost year of "healthy" life. The burden of disease is evident in the gap between the current health of a population and an ideal situation where everyone in the population lives to old age in full health [40]. DALYs for a disease or health condition are calculated as the sum of the years of life lost as a result of premature mortality (YLL) in

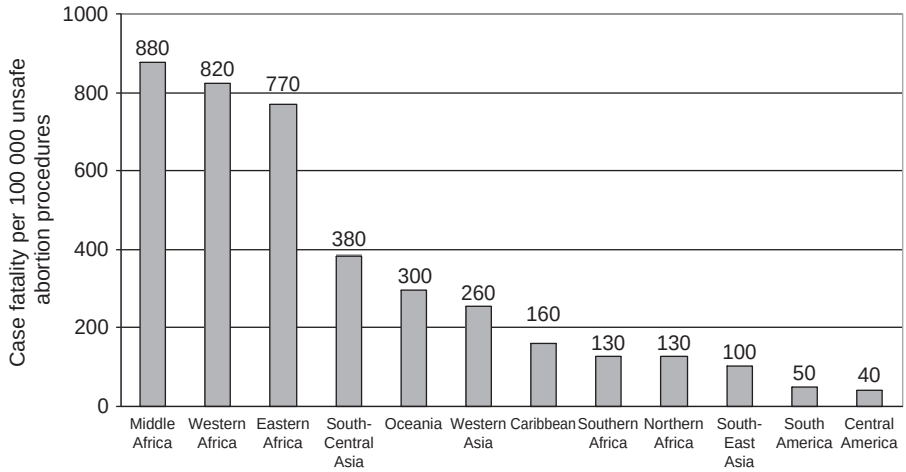

Figure 2.3 Number of deaths as a result of unsafe abortion per 100,000 unsafe abortion procedures, by subregion, 2003.

the population and the equivalent healthy years lost as a result of disability (YLD) for incident cases.

Although unsafe abortion accounts for 13% of maternal deaths, it causes one-fifth of the total burden of the consequence of pregnancy and childbirth complications (Fig. 2.4). The DALY of 100 per 1,000 unsafe abortions in Latin America and the Caribbean is estimated to be the lowest among developing regions (Table 2.7). The DALYs in Africa, Asia, and Oceania are six times, four times, and three times higher, respectively. These disparities reflect the risks because of abortion methods as well as access to health services in case of complications.

The most common causes for women to seek hospital care following an unsafe abortion are sepsis, hemorrhage, and trauma. However, for every woman who seeks medical care, many more have chronic pelvic or back pain and other complications. Women may attempt to remedy these problems by homemade cures or by consulting a pharmacist or an untrained person. Chronic or repeat infection as well as uterine trauma may lead to secondary infertility. In some cases, an emergency hysterectomy is needed to save the woman's life. Using the methodology outlined in the Global Burden of Disease series [41], each year 1.7 million women are estimated to experience secondary infertility, while more than 3 million are estimated to suffer from pelvic inflammatory disease or reproductive tract infections as a consequence of unsafe abortion.

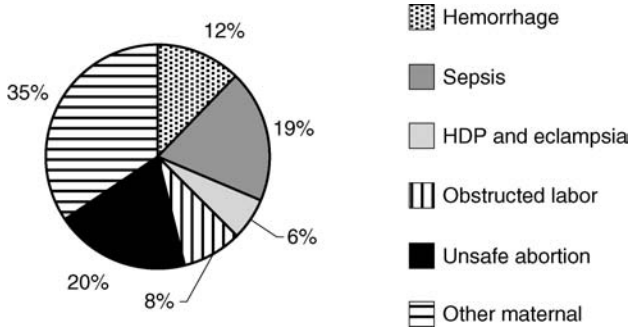

Figure 2.4 Percentage distribution of Disability-Adjusted-Life-Years (DALYs) by pregnancy and childbirth related causes, 2002. *Note:* "Other maternal" includes direct obstetric causes of death and sequelae not among the five mentioned and all indirect obstetric causes of sequelae and death. HDP = hypertensive disorders of pregnancy.

Legal context of abortion

Legal restrictions do not eliminate abortion; instead, they make abortions clandestine and unsafe. Unsafe abortion carries high risk of death and disability. Unsafe abortion and related mortality are consistently higher in countries with increasing restrictions on legal abortion [3].

Abortion is permitted on several grounds in most countries. However, in five countries (Holy See, Chile, El Salvador, Malta, and Nicaragua) induced abortion is not permitted even to save the life of the woman [42]. While 67% of developed countries permit abortion on request, the corresponding figure is 15% for developing countries

Table 2.7 Disability-Adjusted Life Years (DALYs) per 1,000 unsafe abortions by major geographical regions, 2002.

	DALYs per 1000 abortions (rounded)
World	350
Developed countries	100
Developing countries	400
Sub-Saharan Africa	650
Africa	550
Asia	400
Latin America and the Caribbean	100
Oceania	300

Table 2.8 Grounds on which abortion is permitted (United Nations [42].)

	To save the woman's life	To preserve physical health	To preserve mental health	Rape or incest	Fetal impairment	Economic or social reasons	On request
				% of countries			
All countries	97	67	64	48	45	34	28
Developed countries	96	88	86	84	84	78	67
Developing countries	97	60	57	37	32	19	15
				% of population			
World population	99	78	75	72	64	61	40

(Table 2.8). Abortion is permitted solely to save the woman's life in 22 countries in Africa, 15 in Asia, 3 in Europe, 11 in Latin America, and 7 in Oceania. During the last decade, abortion laws have been liberalized in Guyana, South Africa, Nepal, and most recently, in Mexico City. The positive health impact of these changes has been documented for South Africa [43]. In Benin, Bhutan, Burkina Faso, Chad, Colombia, Ethiopia, Guinea, Mali, Saint Lucia, Swaziland, and Togo, grounds for legal abortion have been expanded, although abortion is not permitted on request.

The global discourse addressing unsafe abortion

As early as 1967, the World Health Assembly identified unsafe abortion as a serious public health problem [44]. The 1994 International Conference on Population and Development (ICPD) highlighted the concept of reproductive rights and established goals and targets, including universal access to reproductive health (services) by 2015. The ICPD Programme of Action called for all parties to address the health impact of unsafe abortion and improve family planning services:

> In circumstances where abortion is not against the law, such abortion should be safe. In all cases, women should have access to quality services for management of complications arising from abortion. Postabortion counselling, education, and family planning services should be offered promptly, which will also help to avoid repeat abortion [45].

In June to July 1999, the Special Session of the United Nations General Assembly urged access to safe abortion services:

> In circumstances where abortion is not against the law, health systems should train and equip health service providers and should take other measures to ensure such abortion is safe and accessible [46].

In 2004, the World Health Assembly approved the Reproductive Health Strategy of the World Health Organization, noting:

> As a preventable cause of maternal mortality and morbidity, unsafe abortion must be dealt with as part of the Millennium Development Goal on improving maternal health and other international development goals and targets [47].

In September 2006, the Special Session of the African Union Conference of Ministers of Health [48] held in Maputo agreed on a Plan of Action to:

- enact policies and legal frameworks to reduce the incidence of unsafe abortion
- prepare and implement national action plans to reduce the incidence of unwanted pregnancies and unsafe abortion
- provide safe abortion services to the fullest extent of the law
- educate communities on available safe abortion services as allowed by national laws
- train health providers in preventing and managing unsafe abortion.

Consensus is established on a number of points. For example, unsafe abortion is generally accepted as being an important and preventable cause of maternal death. Most international resolutions signed by countries note the agreement that safe abortion services should be provided to the full extent of the law and that postabortion care should be provided in all cases. Expansion of access to family planning services for prevention of unsafe abortion is universally supported. However, reducing legal restrictions on access to safe abortion services remains a highly contentious issue.

To identify reducing maternal mortality as a public health priority while failing to prevent unsafe abortion that kills tens of thousands of women each year is paradoxical. Although much emphasis is placed on providing postabortion care, too little is directed toward preventing unwanted pregnancy and unsafe abortion. The public health impact of unsafe abortion has long been recognized, but more needs to

be done to remove the strategic and policy barriers to saving women's lives.

Conclusion

Induced abortion is arguably the most important human rights and equity issue of our time. Induced abortion exists in all parts of the world. Legal restrictions, mostly in developing countries, make abortion clandestine. The persistence of unsafe abortion continues to exert a heavy toll on women's lives, especially in poor regions of the world and among the most disadvantaged. In sub-Saharan Africa, the health burden of unsafe abortion is exceptionally high when compared to any other region. Sub-Saharan Africa is also the region with the highest levels of maternal mortality.

To meet the Millennium Development Goal to improve maternal health, countries and the global community will have to aggressively address women's family planning needs, provide services to manage complications arising from unsafe abortion, and provide postabortion care as agreed at the 1994 ICPD in Cairo. Governments will have to reduce the burden of unintended pregnancy through expanded and improved family planning services and social policies that promote equity and empowerment for women. Abortion laws and policies should reflect our current commitment to women's health and well-being rather than criminal codes and punitive measures left over from past centuries. Prevention of unwanted pregnancies must be given highest priority, and all attempts should be made to eliminate the need for unsafe abortion. Women seeking abortion deserve ready access to compassionate counseling, skilled medical care, family planning services, and prompt management of complications should they occur.

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