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Induced abortion: estimated rates and trends worldwide

Summary

Background

Information on incidence of induced abortion is crucial for identifying policy and programmatic needs aimed at reducing unintended pregnancy. Because unsafe abortion is a cause of maternal morbidity and mortality, measures of its incidence are also important for monitoring progress towards Millennium Development Goal 5. We present new worldwide estimates of abortion rates and trends and discuss their implications for policies and programmes to reduce unintended pregnancy and unsafe abortion and to increase access to safe abortion.

Methods

The worldwide and regional incidences of safe abortions in 2003 were calculated by use of reports from official national reporting systems, nationally representative surveys, and published studies. Unsafe abortion rates in 2003 were estimated from hospital data, surveys, and other published studies. Demographic techniques were applied to estimate numbers of abortions and to calculate rates and ratios for 2003. UN estimates of female populations and livebirths were the source for denominators for rates and ratios, respectively. Regions are defined according to UN classifications. Trends in abortion rates and incidences between 1995 and 2003 are presented.

Findings

An estimated 42 million abortions were induced in 2003, compared with 46 million in 1995. The induced abortion rate in 2003 was 29 per 1000 women aged 15–44 years, down from 35 in 1995. Abortion rates were lowest in western Europe (12 per 1000 women). Rates were 17 per 1000 women in northern Europe, 18 per 1000 women in southern Europe, and 21 per 1000 women in northern America (USA and Canada). In 2003, 48% of all abortions worldwide were unsafe, and more than 97% of all unsafe abortions were in developing countries. There were 31 abortions for every 100 livebirths worldwide in 2003, and this ratio was highest in eastern Europe (105 for every 100 livebirths).

Interpretation

Overall abortion rates are similar in the developing and developed world, but unsafe abortion is concentrated in developing countries. Ensuring that the need for contraception is met and that all abortions are safe will reduce maternal mortality substantially and protect maternal health.

Introduction

Induced abortion is one of the greatest human rights dilemmas of our time. The need for scientific

and objective information on the matter is therefore imperative. However, because of the sensitive nature of the topic, data sources are limited and accurate information on the occurrence of induced abortion is difficult to obtain.

The distinction between safe and unsafe abortion is crucial because each has different public-health implications. Safe abortion has few health consequences, whereas unsafe abortions are a threat to women's health and survival.[1], [2], [3], [4] and [5] WHO is involved in efforts to improve maternal health and reduce maternal mortality in 63 priority countries.5 The UN Millennium Development Goals, adopted by 189 nations, include the goal of improving maternal health and the specific target of reducing the maternal mortality ratio by three-quarters between 1990 and 2015.6 Unsafe abortion is a major cause of maternal mortality, and measuring its incidence is important for monitoring progress on this goal. Unsafe abortion also has other consequences, including economic costs to health systems and families, stigmatisation, and psychosocial effects on women.

All abortions, whether safe or unsafe, are a compelling indicator of the incidence of unintended pregnancies, and information on abortion rates can affect the allocation of resources by national authorities, donor nations, and international agencies for contraceptive services and supplies.

This Article presents new estimates of the incidence of induced abortion worldwide, by region, and according to the safety of the procedure, for 2003, the most recent year for which worldwide estimates could be made. We define safe and unsafe abortion and indicate how these definitions intersect with abortion laws and regulations. This work is the product of a comprehensive review of the evidence and systematic methods of estimation, and represents the first known worldwide assessment of abortion incidence since 1995, when estimates were originally developed. It used methods similar to those used in 1995, and we assessed trends in safe and unsafe abortion since that time.

Methods

Data sources

For estimation purposes, safe abortions were defined as those that meet legal requirements in countries in which abortion is legally permitted under a broad range of criteria. Unsafe abortion is defined by WHO as any procedure to terminate an unintended pregnancy done either by people lacking the necessary skills or in an environment that does not conform to minimum medical standards, or both (panel 1).6 These include abortions in countries with restrictive abortion laws, as well as abortions that do not meet legal requirements in countries with less restrictive laws. Although there is not a perfect correlation between the legal status of abortion and its safety, there is substantial evidence that most abortions are safe in countries where the procedure is legally permitted under a broad range of criteria. By contrast, in countries where the procedure is highly restricted by law, abortions are frequently done by unqualified providers, are self-induced, or are done by medical professionals under unhygienic conditions. Even when done by a trained practitioner, the clandestine and illegal nature of abortion in these countries usually means that medical back-up is not immediately available in an emergency, the woman might not receive appropriate post-abortion care, and if complications occur the woman might delay seeking care.

Panel 1. Definitions of safe and unsafe abortion

Safe abortions

Abortions (a) in countries where abortion law is not restrictive,* and (b) that meet legal requirements in countries where the law is restrictive.†

Unsafe abortions

Abortions done either by people lacking the necessary skills or in an environment that does not conform to minimum medical standards, or both. These include (a) abortions in countries where the law is restrictive and (b) abortions that do not meet legal requirements in countries where the law is not restrictive.

The most current statistics available on safe abortion for many countries at the time of data collection were for 2003. Although some statistics were available for more recent years, having comparable data for all countries was important in order to produce regional and worldwide estimates. Estimates of unsafe abortions are based on data and studies that cover various years, the rough average of which is 2003. Estimates for years other than 2003 were projected forward or backward to 2003 if data for trends were available. Where there was no evidence of changes in rates over time, rates from other years were applied to UN population data for 2003.

Most countries in which abortion is legally available on request or under a range of circumstances have a mechanism for collecting statistics on procedures. We obtained this information from published reports, websites of or special requests to relevant government agencies, or databases compiled by WHO Regional Office for Europe or the Council of Europe.

We examined reports for information on the completeness of abortion records, and with every data request we included an inquiry about the completeness of statistics. Additionally, we consulted available studies and several national and international experts on the quality of abortion statistics. These experts included researchers, officials from government agencies involved in abortion data collection, and administrators of abortion and family planning programmes who were familiar with reporting practices. Where statistics were deemed complete or nearly complete, as was the case in several northern and western European countries, no adjustments were made. In other countries, we corrected the reported numbers for under-reporting, as indicated by experts. We used the same correction factor as was used in our previous study when we did not have sufficient evidence of a change in completeness of reporting.1

For two-thirds of countries for which official reports were available, and in which abortion is considered safe, the reports were deemed complete and the data were not adjusted. In the remaining countries, the average correction factor was 1·4 (which corresponds to an inflation of the official estimate by 40%). The correction factors ranged from 1·05 (USA) to 3·0 (Bangladesh). The inflation factor was high for Bangladesh because official statistics in that country include only menstrual regulation procedures (the only legally permissible procedure), most of which are unreported.

In several countries where abortion is usually legally permissible, accurate abortion reporting systems are not in place; however, women's reports on abortion are available from national surveys. In these cases, we used the number of induced abortions estimated by the surveys. Because structured surveys, at best, achieve around 80–85% completeness in reporting on abortion, we increased the survey-based numbers by 20%, a conservative estimate of the extent of under-reporting in surveys.7

For a few Asian and eastern European countries, abortion data were available from two sources: household surveys for periods close to 2003 and government statistics for the intervening years between the surveys and 2003. In countries for which surveys showed more abortions than were counted in the official statistics, we deemed the survey estimates to be more complete, since even they are known to undercount abortions.8 We used the trend line from official statistics to project estimates forward from the survey year to 2003.

For countries with statistics or survey data for a year within 4 years of 2003 (ie, 1999–2003) and with no information on changes in abortion levels over time, we applied the rate for the available year to the population in 2003 to estimate the number of abortions in 2003. For a few countries that lacked sufficient data, either from official statistics or surveys, we applied a low, medium, or high-variant abortion rate, on the basis of contraceptive prevalence and fertility rates.

Two countries merit special discussion of the methods underlying their estimates, because of their large populations and the difficulty of estimating numbers of safe abortions. In India, although official statistics on legal abortion were known to have omitted many safe abortions done by physicians, there was little basis for estimating the incidence of safe abortion in 1995. A 2002 study provided national abortion estimates based on a survey of facilities in six states.9 The study indicated there were 6·4 million abortions in India, of which 2·4 million were safe. The total was similar to our 1995 estimate, but the estimated number of safe abortions in 2003 was much greater than our 1995 estimate (1·1 million). In Vietnam, official data show a sharp decline in the number of abortions since

the mid 1990s. However, nationally representative Demographic and Health Surveys done in 1996 and 2003 indicate that the abortion rate has been steady or has increased slightly, and experts indicate that there has been an increase in private abortions and in those done in public hospitals but not recorded. These numbers are not captured by official statistics. We applied the yearly survey-based rate of change to our 1995 estimate, which was based on government statistics, to obtain an estimate for 2003. More detailed information on data sources used for safe abortion estimates is available.8

WHO periodically estimates the incidence of unsafe abortion for each region and subregion of the world and has done so for the past 20 years. Unsafe abortion can only be estimated with indirect techniques that draw on all available evidence, including information on complications treated in hospitals, studies on conditions of unsafe abortion, and women's reports in surveys.10 These estimates are further corroborated with data for fertility rates,11 in relation to contraceptive prevalence[12] and [13] and trends, and unmet need for family planning, where available.[14], [15] and [16] Because there are gaps in the evidence base, there is a degree of uncertainty and imprecision in country-specific estimates, which are, therefore, used solely for the purpose of aggregation to the regional and subregional levels. For countries that have data for numbers of women hospitalised for abortion complications, unsafe abortion incidence was estimated by use of an existing and widely used technique that adjusts these numbers for the estimated percentage of women having abortions who do not need or do not receive treatment.17

Reports on household surveys of women sometimes provide abortion rates, from which the national number of abortions can be estimated. Some household surveys report the percentage of women of reproductive age who have ever had an unsafe abortion, and these percentages were converted into yearly rates. When data were taken from a subnational hospital or community-based study, results were weighted to the country's population to adjust for rural and urban distributions in the sample compared with the country as a whole. A small number of countries for which no information was available were assumed to have the same rate as other countries in the same region, or as other countries with similar abortion laws and rates of fertility and contraceptive use. A more detailed description of methods for estimating unsafe abortion rates is also available.18

Demographic data

To calculate the total, safe, and unsafe abortion rates, we used estimates of the numbers of women of reproductive age (15–44 years) as the denominator; for calculation of the corresponding ratios, the denominator was the number of births in 2003.11 To calculate the proportion of pregnancies that end in abortion, we estimated the number of pregnancies as the sum of all livebirths, induced abortions, and spontaneous pregnancy losses (miscarriages and stillbirths). We estimated the numbers of spontaneous pregnancy losses using a model-based approach derived from clinical studies of pregnancy loss by gestational age, which indicated that spontaneous pregnancy loss is equal to 20% of the number of births plus 10% of the number of induced abortions.19 Abortion numbers, rates, and ratios were calculated for regions as defined by the UN (panel 2), which follow familiar geographical divisions.11

Panel 2. UN listing of countries by geographical region

Africa

Eastern Africa

Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Réunion, Rwanda, Somalia, Tanzania, Uganda, Zambia, Zimbabwe

Middle Africa

Angola, Cameroon, Central African Republic, Chad, Congo, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Sao Tome and Principe

Northern Africa

Algeria, Egypt, Libya, Morocco, Sudan, Tunisia, Western Sahara

Southern Africa

Botswana, Lesotho, Namibia, South Africa, Swaziland

Western Africa

Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo

Asia

Eastern Asia

China, Hong Kong Special Administrative Region of China, Macau Special Administrative Region of China, North Korea, Japan, Mongolia, South Korea

South-central Asia

Afghanistan, Bangladesh, Bhutan, India, Iran, Kazakhstan, Kyrgyzstan, Maldives, Nepal, Pakistan, Sri Lanka, Tajikistan, Turkmenistan, Uzbekistan

Southeastern Asia

Brunei, Burma, Cambodia, East Timor, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, Vietnam

Western Asia

Armenia, Azerbaijan, Bahrain, Cyprus, Georgia, Iraq, Israel, Jordan, Kuwait, Lebanon, Occupied Palestinian Territory, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, Turkey, United Arab Emirates, Yemen

Europe

Eastern Europe

Belarus, Bulgaria, Czech Republic, Hungary, Moldova, Poland, Romania, Russia, Slovakia, Ukraine

Northern Europe

Channel Islands, Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Lithuania, Norway, Sweden, UK

Southern Europe

Albania, Bosnia and Herzegovina, Croatia, Former Yugoslav Republic of Macedonia, Greece, Italy, Malta, Portugal, Serbia and Montenegro, Slovenia, Spain,

Western Europe

Austria, Belgium, France, Germany, Luxembourg, Netherlands, Switzerland

Latin America and the Caribbean

Caribbean

Bahamas, Barbados, Cuba, Dominica, Dominican Republic, Guadeloupe, Haiti, Jamaica, Martinique,

Netherlands Antilles, Puerto Rico, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago, United States Virgin Islands

Central America

Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama

South America

Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela

Northern America

Canada, USA

Oceania

Australia and New Zealand

Australia, New Zealand

Melanesia

Fiji, New Caledonia, Papua New Guinea, Solomon Islands, Vanuatu

Micronesia

Guam, Micronesia

Polynesia

French Polynesia, Samoa, Tonga

Developed regions

Northern America, Europe, Japan, Australia, and New Zealand

Developing regions

Africa, Americas, excluding Canada and USA, Asia excluding Japan, and Oceania excluding Australia and New Zealand

Role of the funding source

The funding source had no role in study design, data collection, data analysis, data interpretation, or writing of the report. The corresponding author had full access to all the data in the study and had final responsibility for the decision to submit for publication.

Results

An estimated 42 million induced abortions occurred in 2003, compared with the 1995 estimate of 46 million (table 1). The abortion rate (yearly number of induced abortions per 1000 women aged 15–44 years) worldwide was 29 in 2003, down from 35 in 1995. The total abortion rate, which can be interpreted as the number of abortions a woman will have if current rates prevail throughout her reproductive lifetime, was 1·1 in 1995 and 0·9 in 2003. An assessment of trends between 1995 and 2003 should take into account the fact that figures for both years are estimates and are not precise values. Additionally, improvements in data availability and estimation methods might have contributed to the higher estimates in Africa for 2003 than for 1995. However, declines in abortion

rates in some regions are substantial and likely real.

Table 1.

Global and regional estimated numbers of induced abortion and abortion rates, 2003 and 1995

* Abortions per 1000 women aged 15–44 years.

The observed decline was greater in developed regions (panel 2) than in developing countries. Within the developed regions, the sharpest decline in abortion rates was in eastern Europe, where it was estimated to be 90 per 1000 women in 19951 and 44 in 2003. This decline had already begun before 1995.1 Elsewhere in the developed regions, the abortion rate declined modestly in Oceania (which consisted mainly of Australia and New Zealand), and negligibly in northern America (Canada and the USA).

In the developing world, the total number of abortions changed very little (from 35·5 million to 35·0 million), but the rate fell from 34 to 29 per 1000 women (about 15%). In China, which accounts for a fifth of all abortions worldwide, the rate seemed to have declined by a little over 20%. When China was excluded, the total number of abortions in developing countries actually increased by 1·5 million, and the rate fell by only 9%.

The estimated absolute number of abortions was greater in 2003 than in 1995 in Africa, but was lower in 2003 in Asia, and Latin America and the Caribbean. However, the abortion rate seemed to have decreased in Africa, Asia, and Latin America and the Caribbean. Contrasting trends in the numbers of abortions and abortion rates were explained by population growth during this time. Because of the concentration of the world's population in Asia, more than half of the world's abortions in 2003 (26·4 million) took place there, and a substantial proportion of these (8·6 million) were in China.

Almost half of all abortions in 2003 were unsafe (table 2). In developed regions, most abortions (92%) were safe, but in developing countries, more than half (55%) were unsafe, including 38% of abortions in Asia, 94% in Latin America and the Caribbean, and 98% in Africa. Overall, 97% of all unsafe abortions in 2003 were in developing countries.

Table 2.

Estimated number of safe and unsafe induced abortions and abortion rates by region and subregion, 2003

* Abortions per 1000 women aged 15–44.
† Less than 0·05.
‡ Less than 0·5.
§ WHO published rate of 11 refers to developing regions of Oceania and does not include populations in Australia and New Zealand.

The abortion rate per 1000 women was similar for Africa, Asia, Europe, and Latin America and the Caribbean, but lower in northern America and Oceania (table 2). However, there was variation within regions (the subregional level). In Africa, the abortion rate ranged from 22 (northern Africa) to 39 (eastern Africa), and in Latin America and the Caribbean, from 25 (Central America) to 35 (Caribbean). In Asia, the rate ranged from 24 (western Asia) to 39 (southeastern Asia).

The abortion rate per 1000 women was lowest in western Europe (12), and was also quite low in northern and southern Europe (17–18) and Oceania (17). In these geographic areas, most abortions were legal and abortion incidence had been low for decades.20 Northern America also had a low abortion rate of 21. Of the subregions in which most abortions were legal, two showed continued high rates of abortion: eastern Europe at 44, and to a lesser extent, eastern Asia at 28. Although the rate in the eastern European region has fallen substantially in recent years, it remains higher than in any other region.

The abortion ratio (the number of abortions for every 100 livebirths) was about 31 worldwide in 2003

(table 3). Safe and unsafe abortion ratios were similar to each other (16 and 15, respectively). The abortion ratios in developing countries tended to be lower than those in developed countries, even though the rates were comparable or higher in developing countries, largely because birth rates were higher in developing countries.

Table 3.

Global, regional, and subregional estimated abortion ratios and percentages of pregnancies that ended in abortion, 2003

* Per 100 births.
† Estimated pregnancies including livebirths, induced abortions, spontaneous abortions, and stillbirths.
‡ Less than 0·5.
§ WHO published ratio of 8 refers to developing regions of Oceania and does not include births in Australia and New Zealand.

The abortion ratio was highest in eastern Europe (105 per 100 livebirths) as a result of both a high incidence of abortion and low fertility rates. There were slightly more abortions than births on average in this region. Abortion ratios were also high in eastern Asia (which is dominated by China), southeastern Asia, and the Caribbean.

There were an estimated 205 million pregnancies (livebirths, spontaneous miscarriages, stillbirths, and induced abortions) worldwide in 2003, of which about 20% ended in induced abortion. In eastern Europe, almost half of all pregnancies ended in induced abortion, whereas in northern America, one in five pregnancies ended in abortion. Even in regions where small proportions of pregnancies end in induced abortion, such as middle and western Africa, about one in ten pregnancies were terminated.

Discussion

The findings presented here provide new estimates of abortion incidence at the worldwide and regional levels, which had not been updated since 1995. In the face of a dearth of information for many countries, particularly those in which abortion laws are highly restrictive, this study drew on all available sources of information and used systematic and consistent methods to estimate abortion incidence. Information on abortion rates and trends has important implications for stakeholders in many fields, including public health, public policy, the law, and reproductive rights.

The estimates presented here indicate that the incidence of induced abortion worldwide has declined since 1995, but trends have been variable across regions. The change in developing regions (excluding China) has been modest. However, a definite and much larger decrease in the incidence of abortion was seen in the developed regions as a whole. The most pronounced change was in countries of the former Soviet Union (principally consisting of eastern Europe, but also including a few countries in northern Europe, south-central Asia, and western Asia).[1] and [8] Although the magnitude of this decline might be overestimated because abortions were increasingly being done in the private sector and the incidence of such procedures might be underestimated, the reduction in abortion rates did coincide with substantial increases in contraceptive use in the region.[21] and [22] With respect to family planning, the Soviet era was characterised by restricted access to contraceptive services, combined with the availability of abortion services at little or no cost to the woman.23 Since that time, the efforts of international donors and governmental agencies have resulted in improved access to contraceptive information and supplies,21 whereas the cost of abortion has increased in many settings.23

Although abortion rates and ratios in the countries of the former Soviet Union have fallen substantially in recent years, the rates in eastern Europe remain higher than in any other region. This finding suggests the need for continued improvements in and expansion of contraceptive service provision. The widespread preference for small families in this region indicates a high level of need for effective contraception.[21] and [24]

Abortion incidence in 2003 was moderate to high in the African region. The estimated number of unsafe abortions in 2003 was higher than that for 1995, partly because studies in the intervening

period revealed high levels of unsafe abortion, and partly because the population had grown. High abortion rates in sub-Saharan Africa coexist with high levels of unmet need for contraception,25 and the higher rates in eastern Africa than in western Africa are consistent with higher overall demand for family planning in eastern Africa.25

Unsafe and safe abortions correspond in large part with illegal and legal abortions, respectively (panel 1). The findings presented here indicate that unrestrictive abortion laws do not predict a high incidence of abortion, and by the same token, highly restrictive abortion laws are not associated with low abortion incidence. Indeed, both the highest and lowest abortion rates were seen in regions where abortion is almost uniformly legal under a wide range of circumstances.

Results of previous studies have shown a strong correlation between abortion and contraception use such that, in settings with steady fertility rates over time, abortion incidence declines as contraceptive use increases.26 An analysis of trends in eastern Europe and western and south-central Asia indicates that this pattern is evident in those regions.22

Although abortion is likely to be safe in countries where it is legally available under a wide range of circumstances, unsafe abortions still take place in some of these areas because of poor information or access to safe medical services. In eastern Europe and central Asia, 8–16 per 100 procedures lead to post-abortion complications and 15–50% of maternal deaths are related to abortion.21 Some of the high-risk abortions are illegal, whereas others are legal but done under poor conditions or using inappropriate methods. More often, however, legal abortions are safe. In the USA, fewer than 0·3% of women undergoing abortions have a complication that necessitates admission to hospital,27 and abortions (both spontaneous and induced) account for 4% of maternal deaths.28

Similarly, some abortions in restricted settings are done by trained providers, but most abortions in these settings have high risks to a woman's life and health. In Africa, where abortion is highly restricted by law in nearly all countries, there are 650 deaths for every 100 000 procedures, compared with fewer than 10 per 100 000 procedures in developed regions.18 Worldwide, an estimated 5 million women are hospitalised every year for treatment of complications related to unsafe abortion.29 Moreover, illegal procedures are harmful even when they do not lead to these consequences, because they require women to take actions in violation of the law and often without the knowledge or support of their partners or family.

We should also note that the level of risk associated with unsafe abortion varies according to circumstances and can change over time. In Peru and the Philippines the rate of hospitalisation for abortion-related complications has declined, even as abortion law remained restrictive and the abortion rate remained constant.[17], [30], [31] and [32] Access to safer abortion methods (particularly misoprostol-only abortions) and to better-trained providers has made abortions safer to some degree in these countries.[30] and [31] Legalisation of abortion can have a substantial effect on the safety of the procedure: in South Africa, the incidence of infection from abortion decreased by 52% after a more liberal abortion law went into effect in 1997.33

Worldwide, the rate of unsafe abortion declined slightly between 1995 and 2003, but the proportion of all abortions that were unsafe increased from 44% to 48% in the same interval. These findings reinforce the need to ensure that existing resources for reducing the rates of unsafe abortions are used as fully as possible. WHO has issued technical and policy guidance to assist countries in making safe abortion accessible to the full extent permitted by the law,34 which include: using the safe methods now available for first-trimester abortions, in particular manual and electric vacuum aspiration and medical abortion; training providers on safe and aseptic abortion practice; training mid-level health professionals to do these procedures to the extent allowed by law; ensuring that the needed equipment and supplies are available for safe and appropriate procedures; and providing high quality post-abortion care that includes contraceptive counselling and services.

At the root cause of induced abortion is unintended pregnancy. An estimated 108 million married women in developing countries have an unmet need for contraception,35 and 51 million unintended pregnancies in developing countries occur every year to women not using a contraceptive method. Another 25 million happen as a result of incorrect or inconsistent use of contraception or method failure.36 Meeting the need for contraception and improving the effectiveness of use among women and couples who are already using contraception are crucial steps toward reducing the incidence of

unintended pregnancy.

Estimates of abortion incidence and trends are necessary means of monitoring and responding to its causes, including unmet need for contraception, and, in the case of unsafe abortion, consequences such as maternal morbidity and mortality. In our research, we have been able to estimate abortion rates and trends by geographic region and according to the safety of the procedure. Additional research examining variations within and between regions and over time in the incidence of unintended pregnancy, the types of abortion procedures used, and the severity of consequences of unsafe abortion, would help establish where service improvements are most needed and whether the health risks associated with unsafe abortion are declining. In light of the recent mandates of intergovernmental bodies, the contraceptive and abortion technologies now available, and the estimates presented here, prevention of unsafe abortion is an imperative public-health goal.

Contributors

GS participated in data collection and estimation of safe abortion incidence, writing portions of the paper, editing the paper, and preparation of tables. SH, SS, and IHS participated in providing technical assistance during data collection and analysis, writing portions of the paper, and editing the paper. EÅ participated in data collection and estimation of unsafe abortion incidence, writing portions of the paper, and editing of the paper.

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* Defined as countries in which abortion is legally permitted for social or economic reasons or without specification as to reason, and a few countries and territories with more restrictive formal laws in which safe abortion is nevertheless broadly available.
† Such abortions are currently too few to be included in these estimates.

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